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Mastocytosis and Insect Venom Hypersensitivity

ABSTRACT BOOK

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ORAL PRESENTATION SESSION

MASTOCYTOSIS & HYMENOPTERA

VENOM ALLERGY

Submission number: 000055

Prefix: OAS-03

Digital Patient-Reported Data Highlight the Functional and Healthcare

Burden of Mastocytosis: Insights from the MASTHAVE® App

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Background

Mastocytosis is a rare, heterogeneous disease associated with chronic symptoms, acute reactions, high healthcare utilization, and limitations in daily functioning. While clinical manifestations are increasingly described, patient-reported data on the health-economic impact and potential financial burden remain limited. The MASTHAVE® app enables structured real-world documentation of mastocytosis-related outcomes, healthcare use, and work or study participation.

Method

Data were extracted from the MASTHAVE® database with a cut-off of 20 April 2026. Users with completed baseline data were included, while incomplete entries and test users were excluded. Demographic, clinical, patient-reported outcome, healthcare utilization, emergency care, and work or study-related variables were analyzed descriptively.

Results

By April 2026, the MASTHAVE® app had 1,555 downloads and 44,268 documented days of use. Baseline data were available from 754 users for demographic analyses, with a median age of 49.2 years and a median age at disease onset of 31.6 years. The most frequently reported symptoms were fatigue (77.9%), itch (74.9%), and bloating (70.1%). Disease burden was substantial: the median Mastocytosis Control Test score was 9, and 72.1% of users reported insufficient disease control (MCT <13). Quality-of-life impairment was also frequent, with 45.2% of users showing moderate-to-severe impairment (MC-QoL $\geq$ 52). Overall, 65.4% of participants were engaged in work or study. Among users not working or studying, 51.1% reported their health condition as the reason, with a higher proportion among women than men (56.6% vs. 32.3%). Healthcare utilization was high, with 28.3% of users reporting 6–10 physician visits and 26.1% reporting $\geq$ 11 visits within the previous 12 months. Emergency care was also common: 36.8% reported 1–2 emergency room visits per year, and 5.7% reported $\geq$ 11 visits.

Conclusion

MASTHAVE® real-world data highlight a relevant functional, healthcare, and potential financial burden in mastocytosis. Digital patient-reported documentation can support systematic assessment of disease impact beyond symptoms and may help identify unmet needs related to work participation, healthcare use, and access to care.

Conflicts of interest

P. Pyatilova is or recently was a speaker and/or advisor for and/or has received research funding from Blueprint Medicines, Celldex, Granular, GSK.

Submission number: 000045

Prefix: OAS-05

Molecular sensitization patterns, anti-CCD reactivity and baseline serum tryptase in Brazilian patients with insect venom-induced anaphylaxis

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Background

Brazil harbors a highly diverse fauna of stinging and biting insects, which may influence patterns of venom sensitization. However, molecular sensitization profiles in Brazilian patients with insect venom-induced anaphylaxis remain poorly characterized. This study aimed to evaluate molecular sensitization patterns, anti-cross-reactive carbohydrate determinant (CCD)

antibodies, and baseline serum tryptase (BST) levels in Brazilian patients with insect venom-induced anaphylaxis.

Method

A total of 53 patients with a history of anaphylaxis triggered by fire ants (FA), honeybees (HB), or vespid venoms (VV) were enrolled. All patients had previous positive diagnostic tests (specific IgE and/or skin tests) confirming venom sensitization and provided informed consent. Patients with FA-induced anaphylaxis were evaluated for sensitization to honeybee and vespid molecular components (rApi m1, rApi m2, rApi m3, rApi m4, rApi m5, rApi m10, rVes v1, rVes v5, and rPol d5). Anti-CCD IgE and BST were assessed in all participants using fluorescence enzyme immunoassay (FEIA).

Results

Among the 53 patients, 20 (37.7%) had FA-induced anaphylaxis, 16 (30.2%) HB-induced anaphylaxis, and 13 (24.5%) VV-induced anaphylaxis; four patients (7.5%) reported reactions to more than one insect group. BST exceeded 11.4 ng/mL in one patient (1.9%) and 8 ng/mL in three patients (5.7%). All patients tested negative for anti-CCD IgE. Among FA-anaphylactic patients, 11/20 (55%) showed sensitization to at least one HB or VV molecular component. Sensitization frequencies were 5/20 (25%) for rApi m5, 6/20 (30%) for rPol d5, 4/20 (20%) for rVes v5, 2/20 (10%) for rApi m3, and 1/20 (5%) each for rApi m1, rApi m2, and rApi m10; no patients were sensitized to rApi m4 or rVes v1.

Conclusion

A substantial proportion of patients with fire ant-induced anaphylaxis displayed sensitization to honeybee and/or vespid venom components, suggesting potential immunological overlap among venom sources. In contrast, anti-CCD sensitization was absent in this cohort, differing from frequencies reported in European populations. Elevated BST levels were also uncommon and occurred at lower frequencies than those generally reported in the literature. Together, these findings suggest regional differences in molecular sensitization patterns among Brazilian patients with insect venom-induced anaphylaxis and support the need for further studies in larger cohorts.

Conflicts of interest

The ImmunoCAP IgEs used in this research were donated by ThermoFisher.

Submission number: 000085

Prefix: OAS-06

Comparative evaluation of venom preparations for CAP inhibition testing in Hymenoptera venom allergy

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Background

CAP inhibition (CAPI) tests help distinguish true sensitization from cross-reactivity in Hymenoptera venom allergy and can guide the choice of venom for immunotherapy. We aimed to analytically validate a literature-based CAPI protocol and to compare the performance of three different venom preparations (aqueous versus depot) for homologous inhibition.

Method

A method comparison was performed using three commercial wasp and honey bee venom preparations (A and B aqueous venom, C depot venom). sIgE was quantified using ImmunoCAP (Thermo Fisher Scientific). Serum (100 µL) from six honey bee (i1) and nine wasp (i3, *Vespula spp.*) serologically monosensitized patients was incubated overnight at 4°C in a 1:1 ratio with the corresponding venom for homologous inhibition or PBS. Homologous inhibition was calculated relative to the PBS dilution using the formula: inhibition (%) = 100 x [(sIgE_{PBS} - sIgE_{venom})/sIgE_{PBS}], with ≥70% considered acceptable. Repeatability was assessed in three wasp-monosensitized sera with baseline sIgE levels of approximately 0.5, 3.0 and 10.0 kUA/L using five replicates per sample in one run with the aqueous wasp venoms A and B; for the depot venom C, only a ±3.0 kUA/L sample was tested. SD and CV were calculated, with a repeatability CV ≤10% considered acceptable according to AllergoBioNet recommendations. Dose-response effects were evaluated using serial dilutions (0.1–100 µg/mL) of aqueous wasp venoms A and B in three wasp-monosensitized patients.

Results

Two venom preparations (A and B) achieved ≥70% homologous inhibition in 13/15 (range: 58.6-97.4% inhibition) and 12/15 samples (range: 23.3-97.9% inhibition), respectively, whereas depot venom C achieved homologous inhibition in only 3/15 (range: 29.3-93.3% inhibition). All three wasp venom preparations showed acceptable repeatability (CV ≤10%). A clear dose-response relationship was observed for the aqueous wasp venoms A and B, reaching maximal inhibition at 100 µg/mL.

Conclusion

A literature-based CAPI protocol was analytically validated for homologous inhibition, repeatability and dose-response effects in a small cohort. The two aqueous venom preparations proved suitable inhibitors for CAPI testing, whereas one (depot) preparation did not meet predefined performance criteria. These findings are relevant for laboratories selecting venom preparations for diagnostic CAPI testing in Hymenoptera venom allergy.

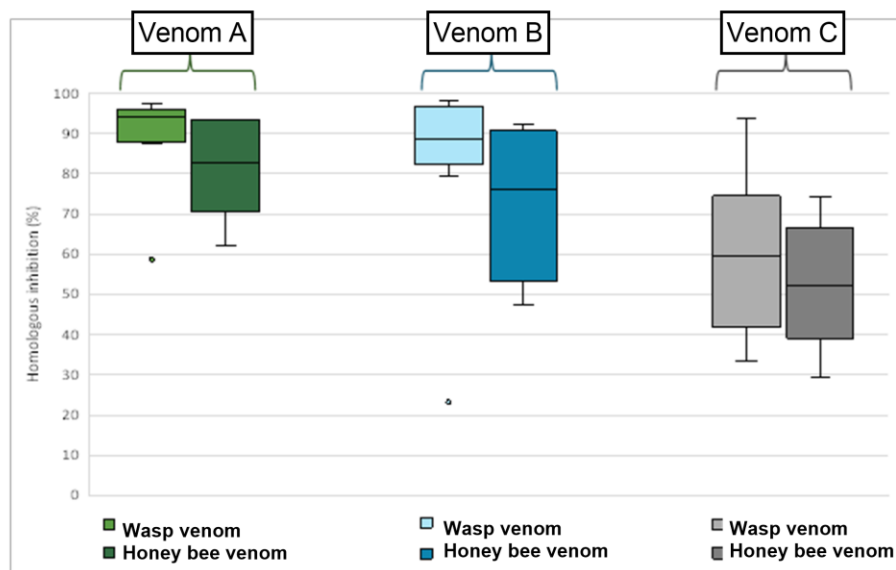


Figure 1

Figure 1. Boxplots of homologous CAP inhibition (%) per venom, illustrating distribution among nine wasp-venom (i3, *Vespula spp.*)- and six honey bee venom (i1)-monosensitized patients. The boxes represent the interquartile ranges (IQR = Q1-Q3) with the lines inside the boxes indicating the medians. Whiskers extend to the minimum and maximum values within 1.5 x IQR and individual points beyond this range are considered outliers.

Conflicts of interest

The authors did not specify any links of interest.

POSTER DISCUSSION TOPIC 1

HYMENOPTERA VENOM

IMMUNOTHERAPY

Submission number: 000024

Prefix: P-02

Successful Use of Adjuvant Omalizumab in a Patient with Wasp Venom Hypersensitivity and Concomitant Severe Asthma

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Background

Venom immunotherapy (VIT) is a treatment designed to prevent life-threatening anaphylactic reactions following an insect sting. Adverse reactions during immunotherapy, particularly severe and recurrent ones, may lead to discontinuation. Omalizumab (OMA) has emerged as a potential adjunctive therapy to improve VIT tolerability.

Method

We report the case of a 52 y.o. woman with severe asthma, characterized by approximately two exacerbations annually, and confirmed wasp venom hypersensitivity. During the diagnostic workup, an intradermal test provided a positive result at a concentration of 0.1 µg/mL. Shortly after the test reading, the patient developed an adverse reaction characterized by throat pruritus, intense cough, and wheezing, requiring treatment with Short-Acting Beta-Agonist (SABA), antihistamines (AH) and systemic corticosteroids (SCS), with complete symptom resolution thereafter. She subsequently underwent an ultra-RUSH VIT induction protocol without adverse reactions and successfully reached the maintenance phase. However, beginning with the third maintenance dose, she developed recurrent episodes of airway obstruction requiring SABA, SCS and AH. These reactions persisted despite the reduction of the VIT maintenance dose. Following immunotherapy intolerance, a baseline serum tryptase (BST) measurement was performed and found to be elevated above the normal range. Considering the overall clinical picture, the patient was referred to hematology and genetics clinics for further evaluation of possible mastocytosis. To enable continuation of VIT, OMA therapy was initiated.

Results

Following the introduction of OMA, the patient experienced complete resolution of VIT-related respiratory adverse reactions. Maintenance of VIT was continued without interruption, and no further systemic or respiratory reactions occurred during subsequent administrations. Asthma control improved substantially, with no exacerbations and no need for SCS during follow-up. Further investigations for mastocytosis revealed normalization of baseline serum

tryptase levels and a bone marrow biopsy unremarkable. Although the patient does not currently meet diagnostic criteria for mastocytosis, she remains under hematological surveillance because of her suggestive clinical history and is awaiting the results of KIT gene mutation testing.

Conclusion

This case demonstrates the potential value of OMA as an adjunctive therapy in a patient who developed recurrent respiratory adverse reactions during VIT. The addition of OMA enabled uninterrupted continuation of life-saving VIT despite previous intolerance and was associated with complete control of asthma symptoms. The severe reaction following intradermal testing and the transient elevation of BST also emphasize the importance of investigating potential mast cell disorders in patients with unexpected reactions during VIT, even when diagnostic criteria for mastocytosis are not ultimately fulfilled.

Conflicts of interest

The authors did not specify any links of interest.

Submission number: 000029

Prefix: P-03

Recurrent Systemic Reactions in Paediatric Honeybee Venom Immunotherapy: Improved Tolerance after Preparation Switch

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Background

Honeybee venom immunotherapy (VIT) is the only disease-modifying treatment for preventing recurrent systemic sting reactions, but repeated adverse events may complicate the VIT management in highly sensitized children.

Method

We retrospectively analysed a long-term paediatric case of difficult honeybee VIT in a 7-year-old boy, son of beekeepers, referred to our clinic for diagnostic evaluation. At the age of 3, he experienced his first anaphylactic reaction to a honeybee sting, requiring emergency medical intervention. Several other episodes of WAO grade 3 – 4 anaphylaxis to field stings occurred during the following years. Specific IgE was positive for honeybee venom (> 100 kU/L; IgE rApi m1 = 32.9 AU/mL; IgE rApi m10 = 6.1 AU/mL) and negative for *Vespula spp.* and *Polistes spp.*. Basal serum tryptase level was normal (3.31 μ g/L). An additional sensitization was identified for weed pollen (sIgE > 100 kU/L).

Results

VIT was initiated in 2018 with a conventional build-up protocol using an aqueous venom preparation, but was interrupted in 2019 within the build-up phase, after two episodes of WAO grade 4 anaphylactic reactions, at the dose of 10 µg and 7 µg respectively. In 2020 a VIT rush protocol using the same venom preparation, this time preceded by anti-IgE and H1 antihistamine medication, led to grade 4 anaphylaxis when the dose of 0.0001 µg was reached, requiring intensive care support. Subsequently, in spite of resuming the conventional protocol, dose reduction, premedication and dose-splitting, the aqueous preparation remained poorly tolerated within maintenance phase. Reactions occurred more frequently during weed pollen season.

In 2025, VIT was switched to an aluminium-hydroxide-adsorbed (AHA) depot preparation with improved tolerance. No systemic reactions were noticed. The patient currently tolerates maintenance VIT with 100 µg every 4 weeks, administered as two 0.5 mL injections, with omalizumab support. The efficacy of the VIT has not yet been confirmed by either sting challenge or field sting.

Conclusion

This case highlights severe, persistent VIT reactivity despite anti-IgE medication, prolonged dosing adjustments and the absence of evidence for mast cell disorders. Api m 1/Api m 10 positivity supports genuine honeybee venom sensitization. Pollen co-sensitization and preparation-related venom composition may be relevant when interpreting poor VIT tolerance. Long-term maintenance VIT is intended because of ongoing high exposure risk.

Conflicts of interest

The authors did not specify any links of interest.

Submission number: 000031

Prefix: P-04

Anti-IgE therapy in JJA venom allergy: not just a bridge, but a destination?

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Background

Allergy to venom of Hymenoptera spp. *Myrmecia pilosula* (Jack Jumper ant [JJA]) is a common cause of anaphylaxis in south-eastern Australia. A standardised, purified, effective

venom immunotherapy (VIT) product exists, but carries adverse events; is a relatively expensive non-commercial product with constrained availability; and has ongoing questions of durability. Falling anti-IgE costs, shifting economics, and individual patient context and preference may change therapeutic approaches.

We aim review JJA-allergic patients transitioned to omalizumab as primary ongoing therapy versus standard-of-care VIT, and the factors driving this decision.

Method

Records were assembled from patients commencing omalizumab as primary therapy at our single centre, which provides JJA VIT to the entire state of Victoria, Australia. Background VIT data came from the clinic database. Clonal mast cell disease (CMCD) was diagnosed by serum D816V mutation detection and/or BMAT. Cost comparison used the dispensed private prescription cost of omalizumab and base JJA venom per-microgram purchase cost. Annualised staff salaries (and opportunity cost of not treating other patients) gave a crude departmental cost of VIT administration, excluding other hospital and any patient-incurred expenses.

Results

As of May 2026, 16 patients had been prescribed omalizumab as primary JJA therapy: 8/16 had clonal mast cell disease (CMCD) plus additional factors (3 x VIT-associated symptoms; 4 x distance/logistics; 1 x index reaction severity with ultra-low IgE); 3/16 could not establish VIT tolerance; 3/16 failed sting challenge with hypotensive anaphylaxis after completing VIT (all previously tolerant on VIT); and 2/16 chose to self-fund omalizumab owing to travel distance and time off work required for VIT.

Subsequently, eight patients demonstrated complete control at standardised double-sting challenge on omalizumab monotherapy (four with CMCD; one after hypotensive reaction following >5 years VIT). The remaining 8 awaited confirmatory challenge.

Crude cost to the hospital per dose was ~AUD\$474 for VIT versus ~AUD\$226 for omalizumab.

Conclusion

CMCD & VIT failure demand nuanced long-term planning. For patients needing lifelong therapy due to CMCD or prior VIT failure, omalizumab appears a viable economic alternative even before patient-accrued savings—which are not insignificant, with some patients self-funding as primary therapy given the logistic burden of attending for hospital-funded VIT.

Conflicts of interest

KS has previously been and member of advisory boards, and received travel grants from Novartis & Celltrion

Submission number: 000034

Prefix: P-05

Safety and tolerability of accelerated venom immunotherapy with depot extracts in insect venom allergy patients

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Background

Hymenoptera venom allergy (HVA) is one of the leading causes of anaphylaxis in adults. Venom immunotherapy (VIT) remains the only disease-modifying treatment capable of preventing systemic reactions following subsequent stings. Accelerated induction protocols shorten the period of incomplete protection; however, evidence regarding their safety when using depot venom preparations remains limited.

Method

This retrospective single-centre study included all consecutive patients hospitalized for accelerated VIT with aluminium hydroxide-adsorbed depot venom extracts (Alutard SQ) between 2022 and 2024. Qualification for VIT was based on a history of systemic allergic reaction following a Hymenoptera sting and confirmed sensitisation demonstrated by venom-specific IgE and/or positive skin tests. Baseline serum tryptase levels were assessed in all patients. The three-day accelerated induction protocol consisted of escalating doses of Alutard SQ administered at 30–60-minute intervals, reaching concentration 2 (0.3 mL) on day 1, concentration 3 (0.3 mL) on day 2, and concentration 4 (0.3 mL) on day 3. Premedication with antihistamines or systemic corticosteroids was not routinely used. Safety outcomes and adverse events occurring during the build-up phase were recorded and analysed.

Results

A total of 54 patients were included (mean age 51 years; 57% male). 18 patients received honeybee venom immunotherapy and 36 received wasp venom immunotherapy. All patients successfully reached the maintenance dose according to the planned protocol. Adverse reactions occurred in 5 patients (9%) and were limited exclusively to local injection-site reactions, including erythema and swelling. All reactions occurred in patients treated with wasp venom. No systemic reactions, anaphylaxis, dose reductions, or treatment discontinuations were observed. Cardiovascular comorbidities were present in 50% of patients, and no association between ACE inhibitor or beta-blocker use and adverse reactions was identified.

Conclusion

Accelerated venom immunotherapy using aluminium hydroxide-adsorbed depot extracts demonstrated an excellent safety profile in routine clinical practice. Rapid achievement of the maintenance dose was feasible in all patients, while adverse events were infrequent and limited

to mild local reactions. These findings support the use of accelerated depot-based VIT protocols in experienced allergy centres.

Conflicts of interest

The authors did not specify any links of interest.

Submission number: 000041

Prefix: P-06

Honeybee Venom Immunotherapy in the First Trimester: A Case Report

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Background

Venom immunotherapy (VIT) is the only disease-modifying treatment for Hymenoptera venom allergy. Pregnancy presents a clinical dilemma: systemic reactions (SRs) during VIT pose maternal and fetal risks, yet treatment interruption is hazardous for patients with unavoidable exposure. Current guidelines support continuing maintenance VIT, but real-world data in high-risk occupational settings remain scarce.

Method

A 40-year-old female beekeeping technician, with allergic rhinitis and controlled asthma presented with anaphylaxis following a honeybee sting. Symptoms included nasal obstruction, palatal angioedema, ocular erythema, and generalized pruritus, without cardiovascular or gastrointestinal involvement. Work-up confirmed *Apis mellifera* sensitization (specific IgE 14.0 kU/L; positive intradermal testing at 0.001 µg/mL), with negative wasp venom tests. Baseline serum tryptase was normal (3.1 µg/L),

In May 2016, she initiated *Apis mellifera* VIT (Roxall Aristegui, Portugal). Despite continuous occupational exposure, she safely reached and sustained a maintenance dose of 100 µg every 4-6 weeks without systemic reactions. In 2019, during her third year of maintenance VIT, she became pregnant. Given the high occupational risk of field re-stings, a shared decision was made to continue maintenance VIT unchanged throughout the first trimester (up to 12 weeks of gestation). Asthma remained fully controlled on maintenance inhaled therapy. After the first trimester, she discontinued VIT on her own initiative. The pregnancy progressed uneventfully, resulting in a spontaneous term delivery at 39 weeks with no maternal or neonatal complications. Since then, she has been stung frequently without any systemic reactions.

Results

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Conclusion

This case reinforces the safety of continuing well-tolerated, maintenance honeybee VIT even during the first trimester—the most critical period for fetal development and organogenesis. In patients with a high risk of field re-stings, where avoidable discontinuation poses a greater threat of anaphylaxis, maintaining VIT is a viable and safe option. Comprehensive risk assessment, including asthma control, prior VIT tolerance, and baseline tryptase evaluation, remains central to shared decision-making.

Conflicts of interest

The authors did not specify any links of interest.

Submission number: 000048

Prefix: P-07

Efficacy and safety of venom immunotherapy in patients with *Vespa velutina* allergy

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Background

Vespa velutina nigrithorax (VVN), an invasive asian hornet first detected in Europe in 2004 and reported in Portugal since 2011, has emerged as a relevant cause of severe hymenoptera anaphylaxis in the Iberian Peninsula. Until recently no commercial VVN venom extract was available and these patients were treated with *Vespula* spp. venom immunotherapy (VIT) based on cross-reactivity. We aimed to characterize the efficacy and safety of VIT in patients with VVN hypersensitivity followed at our department.

Method

Single-centre retrospective study of patients with VVN-induced systemic reactions who started VIT between 2019 and 2025. Clinical and laboratory data related to the patients and the index reaction were collected, namely demographics, comorbidities, reaction severity (Mueller classification), baseline serum tryptase, specific IgE, VIT extract and induction protocol, pre-medication, re-stings after VIT initiation and VIT-related adverse reactions.

Results

Seven patients were included (6 male patients; mean age 52.7 ± 10.0 years), all with outdoor or rural exposure (2 beekeepers). The index reaction was severe (Mueller grade III–IV) and required emergency care in all. Baseline serum tryptase was within the normal range in all

(median 3.1 ng/mL). Sensitization to VVN was confirmed in 6/7, with co-sensitization to other hymenoptera (Table 1). Two patients started *Vespula* VIT (2019, 2021) as VVN extract was unavailable; the remaining 5 (2024-2025) received VVN VIT (Roxall). A conventional induction protocol was used in all (Table 2), with H1 antihistamine pre-medication in 5/7. All patients reached the maintenance dose; one had completed treatment at the last follow-up. Four patients were stung again after VIT initiation, by VVN (n=1, on VVN VIT), *Polistes* (n=1), *Apis mellifera* (n=1) and an unidentified vespid (n=1); none developed a systemic reaction (3 local reactions, 1 with no reaction). No adverse reactions (local or systemic) to VIT were recorded.

Conclusion

In this small real-world case series, both *Vespula* and VVN VIT were effective and safe: no systemic reaction occurred after re-stings and no VIT-related adverse reactions were observed. These data support VVN-specific VIT as the treatment of choice when available, and *Vespula* VIT as a reasonable alternative when it is not.

	Total patients (n=7)	VVN VIT (n=5)	<i>Vespula</i> VIT (n=2)
Demographics			
Age, mean $\pm$ SD, years	52.7 $\pm$ 10.0	55.0 $\pm$ 10.7	47.0 $\pm$ 7.1
Male sex	6/7	4/5	2/2
Outdoor or rural exposure	7/7	5/5	2/2
Comorbidities			
Allergic (rhinitis, drug allergy)	2/7	2/5	0/2
Cardiovascular	3/7	2/5	1/2
Index reaction severity (Müller)			
Severe (grade III–IV)	7/7	5/5	2/2
Emergency department visit	7/7	5/5	2/2
Mast cell biomarkers			
Baseline tryptase, median, ng/mL	3.1	2.1	4.1
Sensitization profile			
VVN	6/7	5/5	1/2
Pre-treatment VVN-specific IgE, median (range), kUA/L	1.29 (0.72–44.3)	1.79 (0.72–44.3)	-
<i>Vespula</i> spp.	6/7	4/5	2/2
<i>Polistes Dominulus</i>	7/7	5/5	2/2
<i>Vespa crabro</i>	5/7	3/5	2/2
rVes v 5 (antigen 5)	5/7	4/5	1/2
rVes v 1 (phospholipase A1)	4/6	3/5	1/1
rPol d 5 (antigen 5)	4/6	3/5	1/1
<i>Apis mellifera</i>	5/7	3/5	2/2
rApi m 1 (phospholipase A2)	2/6	2/5	0/1
VIT and outcomes			
H1 antihistamine pre-medication	5/7	4/5	1/2
Reached maintenance dose	7/7	5/5	2/2
Treatment completed	1/7	0/5	1/2
Re-sting after VIT	4/7	2/5	2/2
Systemic reaction at re-sting	0/4	0/2	0/2
Adverse reaction to VIT	0/7	0/5	0/2

Table 1. Demographic, clinical and immunological profile of patients treated with *Vespula* or VVN VIT. VVN: *Vespa velutina nigrithorax*; VIT: venom immunotherapy; SD: standard deviation.

Table 1. Demographic, clinical and immunological profile of patients treated with *Vespula* or VVN VIT

Day	Vial	Dose (mcg)	Interval (days)
1	A (25 mcg/mL)	2.5	7
7	A	5	7
14	A	10	7
21	A	20	7
28	B (100 mcg/mL)	40	7
35	B	60	7
49	B	80	14
70	B	100	21
98	B	100	28

Maintenance: 100 mcg from vial B every 4 weeks for 6 months, then every 5 weeks for 6 months, then every 6 weeks until the end of treatment.

Table 2. Hymenoptera venom immunotherapy schedule (conventional protocol).

Table 2. Hymenoptera venom immunotherapy schedule (conventional protocol)

Conflicts of interest

The authors did not specify any links of interest.

Submission number: 000053

Prefix: P-08

Real-World Effectiveness and Safety of Venom Immunotherapy in Children with Hymenoptera Venom Allergy

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Background

Hymenoptera venom allergy is the second most frequent cause of pediatric anaphylaxis in Europe. Venom immunotherapy (VIT) is recommended for children with moderate-to-severe systemic sting reactions being the only disease-modifying treatment capable of preventing future severe reactions. However, real-world data on pediatric VIT remains limited. This study aimed to characterize clinical presentation, diagnostic workup, and outcomes of children undergoing VIT in a tertiary Allergy Department.

Method

We conducted a retrospective case series including all children and adolescents (<18 years) who initiated VIT between 2008-2026. Demographic characteristics, clinical history, environmental risk factors, reaction severity (Mueller classification), baseline tryptase, venom-specific IgE, skin test results, therapeutic strategy, adverse events during VIT, and outcomes after re-stings were analyzed.

Results

Ten patients were included (80% male), mean age 13.8 ($\pm$ 2.0) years. All patients experienced systemic reactions following Hymenoptera stings, with 70% (n=7) severe reactions (Mueller grade III/IV). Baseline serum tryptase was normal in all patients, although higher values were observed among severe reactions (p=0.383). Bee venom was the most frequently implicated allergen (80%, n=8). All patients lived in rural areas, and 80% (n=8) had family members involved in beekeeping, suggesting high-risk exposure profile. VIT was initiated with bee venom in most cases (80%, n=8). Median VIT duration was 60 months ($\pm$ 1–156 months). Treatment was well tolerated, with predominantly local reactions during VIT administration. Adverse events were not associated with initial reaction severity (57.1% in Mueller III/IV vs 66.7% in Mueller I/II p=1.000). One patient experienced recurrent anaphylaxis despite pre and co-treatment with omalizumab and due to persistence of reactions VIT was discontinued and considered unsuccessful. Five patients experienced field re-stings during follow-up with none of them developing systemic reactions.

Conclusion

In this cohort, VIT demonstrated favorable safety profile and high effectiveness in preventing systemic reactions following re-stings. Predominance of severe initial reactions and high level of environmental exposure reinforces the importance of early identification and implementation of VIT, especially in children at risk. These findings support VIT as a highly effective protective strategy in pediatric Hymenoptera venom allergy.

Conflicts of interest

The authors did not specify any links of interest.

Submission number: 000094

Prefix: P-09

Real-World Effectiveness and Safety of *Vespa velutina nigrithorax* Venom Immunotherapy: A 4-Year Portuguese Case Series

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Background

Vespa velutina nigrithorax (VVN) is an invasive hornet that has rapidly spread across Europe, emerging as an increasingly relevant cause of Hymenoptera venom allergy, particularly in the Iberian Peninsula. As specific VVN venom extracts have only recently become available, data on VVN venom immunotherapy (VIT) remains scarce. We aimed to characterize patients undergoing VVN VIT and evaluate tolerability and outcomes.

Method

We retrospectively analysed patients followed at our Allergology Department who initiated VVN VIT. Demographic data, sting history, clinical severity (Mueller classification), exposure risk factors, basal tryptase, skin tests, venom-specific IgE (sIgE), molecular profile, VIT duration, adverse reactions and field re-sting outcomes were collected

Results

Seventeen patients included, 76.5% male, with mean age 51.1 ± 16.3 years. All had previous Hymenoptera stings, including 5 (29.4%) previously stung by VVN. The index reaction followed multiple stings in 41.2%. VVN was the suspected culprit in 82.4%, while the culprit was unknown in 17.6%. Most reactions were severe, with 58.8% classified as Mueller IV. All patients had exposure risk factors, mainly rural residence or outdoor activities. Median basal tryptase was $4.35 \mu\text{g/L}$ [1.0-15.6]. VVN sIgE was documented in all patients across baseline and follow-up. In patients with paired data, VVN sIgE and VVN sIgE/total IgE ratio decreased during VIT, with median ratio reduction from 5.53% to 1.54% at 3 years. Molecular testing showed frequent co-sensitization to vespoid components, particularly Ves v 5 and Pol d 5. All patients initiated VVN VIT, with median duration of 36 months [1-52]. VIT was well tolerated, with local adverse reactions in 3 patients (17.6%). Field re-stings occurred in 8 patients, but only 4 involved VVN; among these, 2 developed large local reactions and 2 had grade III reactions, including one treatment failure requiring dose escalation to 200 μg with omalizumab pre-treatment.

Conclusion

In this real-world series, VVN VIT was prescribed to highly exposed adults with severe reactions and showed favorable safety profile. The decrease in VV sIgE and sIgE/total IgE ratio suggests an immunological trend, although clinical protection should be interpreted through field re-sting outcomes. High vespoid co-sensitization frequency highlights the diagnostic complexity of this population, while reactions during follow-up support constant need for individualized monitoring/treatment.

Conflicts of interest

The authors did not specify any links of interest.

Submission number: 000065

Prefix: P-10

From prescription to action: the adrenaline auto-injector gap in venom immunotherapy patients

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Background

Patients on venom immunotherapy (VIT) remain at risk of systemic reactions following field stings, and adrenaline auto-injectors (AAI) are prescribed for emergency self-treatment. However, real-world AAI use is frequently inadequate. We evaluated AAI prescription and actual self-administration during field sting reactions in a large VIT cohort.

Method

We retrospectively analysed 224 patients receiving Hymenoptera VIT. Recorded variables included demographics, culprit venom, AAI prescription, occurrence of field re-stings, severity of sting reactions graded by the Mueller classification, AAI self-administration, emergency department (ED) attendance, and adrenaline given by any route.

Results

The cohort comprised 224 patients (mean age 41±13 years; 125 male). The culprit venom was honeybee in 111, wasp in 109, and both in 4. An AAI had been prescribed to 196 patients (88%). During follow-up, 104 patients (46%) were re-stung; the resulting reactions were absent in 42, large local in 42, and systemic in 20. Among the 20 systemic field reactions, 11 were moderate-to-severe (Mueller grade 2–3). Despite prescription, only 1 of these 11 patients (9%) self-administered adrenaline; 10 of 11 (91%) attended the ED, where adrenaline was given to 4 (36%). Overall, adrenaline was delivered by any route in only 5 of 11 grade 2–3 reactors (45%). (Figure 1)

Conclusion

Despite a high prescription rate, adrenaline auto-injectors were self-administered by only a small minority of VIT patients experiencing moderate-to-severe systemic field sting reactions, with most relying on emergency services and many receiving no adrenaline at all. This marked gap between prescription and real-world use highlights the need for structured, repeated patient education and hands-on AAI training as an integral part of VIT care.

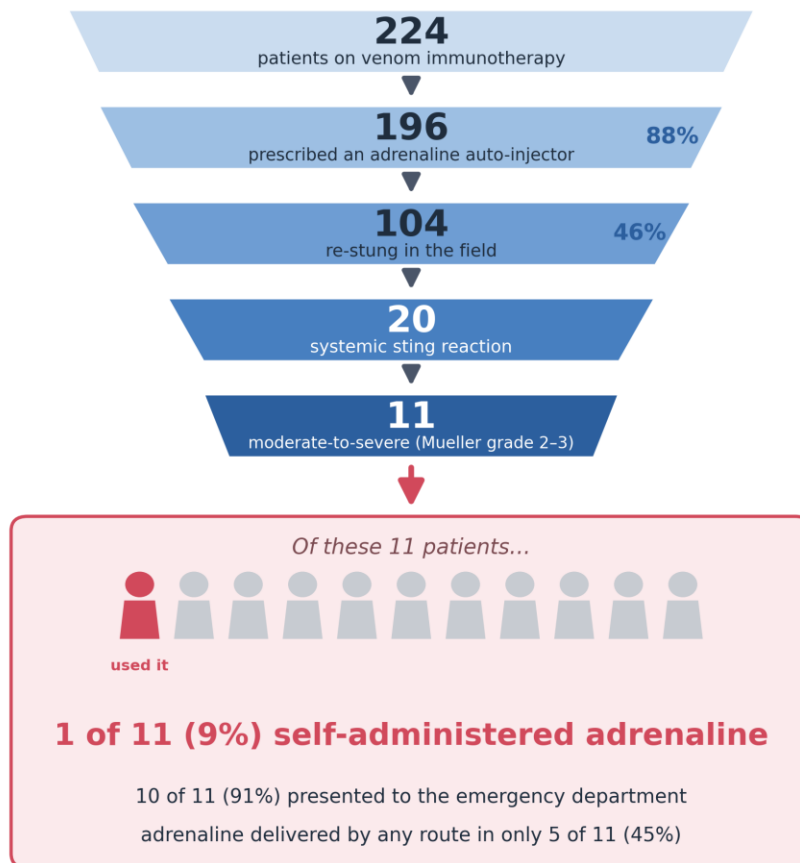


Figure 1. Patient flow from adrenaline auto-injector prescription to use during field sting reactions in venom immunotherapy.

Conflicts of interest

The authors did not specify any links of interest.

Submission number: 000076

Prefix: P-11

Potential role of venom-specific IgG as a marker of natural exposure in beekeepers undergoing honeybee venom immunotherapy: a pilot observational study

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Background

Venom-specific IgG antibodies increase following both natural Hymenoptera stings and venom immunotherapy (VIT). Their potential role as markers of previous exposure and as adjunctive tools in the diagnostic work-up of Hymenoptera venom allergy remains poorly defined.

Method

We retrospectively evaluated 10 beekeepers with a history of systemic reactions to honeybee stings who were candidates for honeybee venom immunotherapy. Venom-specific IgG antibodies against honeybee and other Hymenoptera venoms were assessed before VIT initiation and after completion of the induction phase.

Results

The cohort included 10 beekeepers (mean age 38 years, range 17–62; 80% male). Before VIT initiation, 6/10 patients (60%) showed detectable honeybee venom-specific IgG. Four patients were positive exclusively for honeybee venom, one for honeybee venom plus yellow jacket and *Polistes* venoms, and one for honeybee venom plus yellow jacket, *Polistes* and hornet venoms. Three patients showed no detectable venom-specific IgG, while one patient displayed isolated *Polistes*-specific IgG positivity. Following VIT induction, all patients developed detectable honeybee venom-specific IgG.

Conclusion

In this pilot cohort of beekeepers with honeybee venom allergy, honeybee venom-specific IgG was frequently detectable before initiation of immunotherapy and was universally present after VIT induction. These findings support the concept that venom-specific IgG may reflect previous natural exposure to the culprit venom. Although not a diagnostic marker per se, assessment of venom-specific IgG could provide complementary information in selected cases with uncertain culprit insect identification or complex sensitization profiles. Larger prospective studies comparing venom-specific IgG with established diagnostic tools are warranted.

Conflicts of interest

The authors did not specify any links of interest.

POSTER DISCUSSION TOPIC 2

MASTOCYTOSIS

Submission number: 000018

Prefix: P-13

Hereditary alpha tryptasemia and KIT p.D816V mutation in food-induced anaphylaxis pediatric cohort

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Background

Mast cell disorders such as KIT p.D816V mutation and hereditary α -tryptasemia (H α T) can lead to clonal mast cell disease or mast cell hyperactivity via the PAR2 pathway, respectively. Both conditions have been found to be associated with venom, drug, and idiopathic anaphylaxis. Our objective was to assess the association of KIT p.D816V and H α T with food-induced anaphylaxis in children.

Method

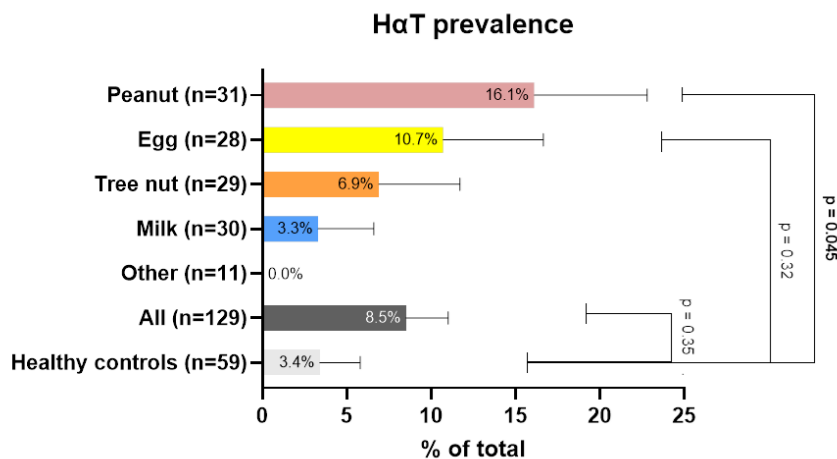
From 2022 to 2024 we prospectively recruited children with systemic allergic reactions referred to a single tertiary paediatric centre. All underwent tryptase genotyping by ddPCR using a custom primer set and examination for KIT p.D816V in blood samples using a highly sensitive qPCR test. We evaluated clinical characteristics, severity of reaction and causes of reaction and compared the findings to 59 healthy controls who underwent minor surgical procedures.

Results

Of 413 recruited children, 129 individuals were diagnosed with food-induced anaphylaxis. The mean BST was 5.7 ng/mL, while all patients with H α T had elevated BST above 11.4 ng/mL. TPSAB1/TPSAB2 genotyping revealed H α T in 8.5% of children with food-induced anaphylaxis, with the highest prevalence in children with peanut-induced anaphylaxis (16.1%, $p = .045$). The prevalence in healthy controls was 3.4%, lower than available data of population prevalence of ~5.5%. The prevalence of α -tryptase was similar in our patient and control cohort (64.3% vs 69.5%, $p = .51$) with the most common genotype in both groups being $\alpha, \beta/\beta, \beta$. Anaphylaxis severity was not associated with α -tryptase carrier status. Only one KIT p.D816V positive individual was identified (hazelnut anaphylaxis, BST 7 ng/mL, allele frequency 0.0002%), consistent with somatic mutation rates.

Conclusion

H α T was enriched in food-induced anaphylaxis, particularly in the peanut subgroup, while the overall α -tryptase carrier rate was comparable between groups, suggesting that H α T drives the observed association, not mere α -tryptase presence. Only one patient had KIT p.D816V, with low frequency expected of a somatic mutation. No co-occurrence of both KIT p.D816V and H α T was observed.



Prevalence of hereditary alpha tryptasemia (H α T) by allergen group in our sample children with severe food-induced anaphylaxis.

Conflicts of interest

The authors did not specify any links of interest.

Submission number: 000020

Prefix: P-14

Bone Disease in Systemic Mastocytosis at Diagnosis: A Single-Center Cohort Study

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Background

Systemic mastocytosis (SM) is a rare clonal mast cell neoplasm characterized by mast cell accumulation in the bone marrow and other tissues. Skeletal involvement is a common but often underrecognized manifestation and may present as osteopenia, osteoporosis, osteosclerosis, lytic lesions, vertebral deformities, and fragility fractures. We aimed to evaluate bone manifestations at diagnosis in adult patients with SM.

Method

We retrospectively reviewed 39 adults diagnosed with SM according to World Health Organization criteria at Ege University Faculty of Medicine between 2009 and 2026. Clinical, laboratory, and radiological data were collected, including disease subtype, baseline serum tryptase, total IgE, alkaline phosphatase (ALP), 25-hydroxyvitamin D levels, dual-energy X-ray absorptiometry (DEXA), and skeletal survey findings.

Results

The cohort included 21 males and 18 females and comprised indolent systemic mastocytosis (ISM, n=19), bone marrow mastocytosis (BMM, n=10), systemic mastocytosis with an associated hematologic neoplasm (SM-AHN, n=5), aggressive systemic mastocytosis (ASM, n=4), and smoldering systemic mastocytosis (SSM, n=1). DEXA data were available for 30 patients. Normal bone mineral density (BMD) was observed in 9 patients (30.0%), osteopenia in 11 (36.7%), osteoporosis in 9 (30.0%), and osteoporosis with a documented fragility fracture in 1 patient (3.3%). Overall, reduced BMD was identified in 21 of 30 evaluable patients (70.0%). Skeletal survey abnormalities included osteosclerotic lesions in 6 patients (15.4%), as well as lytic lesions and vertebral deformities. Osteosclerotic lesions were predominantly observed in advanced disease subtypes, particularly ASM and SM-AHN. Vitamin D insufficiency (<30 ng/mL) was detected in 19 of 27 patients (70.4%). No significant differences in baseline serum tryptase ($p=0.486$) or total IgE levels ($p=0.208$) were observed among patients with normal BMD, osteopenia, and osteoporosis. Likewise, the prevalence of reduced BMD did not differ between advanced and indolent SM subtypes ($p=1.00$).

Conclusion

Bone involvement was highly prevalent at diagnosis and was not restricted to advanced disease, as reduced BMD was frequently observed in patients with ISM and BMM. The absence of significant associations between reduced BMD and baseline serum tryptase, total IgE levels, or disease stage suggests that skeletal involvement may not be reliably predicted by conventional disease burden markers. These findings support routine skeletal assessment, including DEXA evaluation, at the time of SM diagnosis.

Conflicts of interest

The authors did not specify any links of interest.

Submission number: 000021

Prefix: P-15

Beyond Hymenoptera Venom: Clinical Spectrum of Anaphylaxis Triggers in Systemic Mastocytosis

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Background

Anaphylaxis triggers in systemic mastocytosis (SM) represent a broad and heterogeneous clinical spectrum. This study aimed to demonstrate that anaphylaxis in patients with SM may occur not only with Hymenoptera venom but also with spontaneous, drug-related, and atypical triggers, and to compare the clinical and laboratory characteristics of different anaphylaxis phenotypes.

Method

Thirty-nine patients with SM followed at Ege University between 2009 and 2026 were retrospectively evaluated. Patients were categorized as venom-related, spontaneous, drug-induced, or mixed/atypical phenotypes. Demographic, clinical, and laboratory characteristics, including SM subtype, serum tryptase levels, KIT mutation status, and clinical outcomes, were assessed.

Results

Overall, 53% of patients were male, with a mean age of 49.7 ± 13.7 years and a median serum tryptase level of 49.0 ng/mL. Venom-induced anaphylaxis was the most common phenotype ($n=14$), followed by drug-induced ($n=9$) and spontaneous anaphylaxis ($n=7$); atypical triggers included foods, cold exposure, hair dye, solar exposure, and herbal supplements. Clinical and laboratory characteristics are shown in Table 1. Hymenoptera venom allergy was identified in 14 patients (35.9%). Grade 3 and Grade 2 anaphylaxis occurred in 11 and 3 patients, respectively, with recurrent reactions in 8 patients. Three patients received venom immunotherapy, one of whom discontinued treatment due to anaphylaxis during honeybee venom immunotherapy. Indolent systemic mastocytosis (ISM) was the predominant SM subtype in venom, spontaneous, and drug-induced anaphylaxis (Figure 1). Median baseline serum tryptase levels were 30.7 (13.2–173.0), 106 (17–200), and 46.2 (20.4–200.0) ng/mL in the venom, spontaneous, and drug-induced groups, respectively. Pairwise analysis showed a significant difference only between the spontaneous anaphylaxis and venom-related anaphylaxis groups ($p=0.044$), whereas the overall comparison among the three groups was not significant ($p=0.098$) (Figure 2). No significant differences were observed among the remaining trigger phenotypes. Five patients received omalizumab; one showed no clinical response, while treatment was discontinued in another due to psychotic symptoms. The remaining three patients achieved an approximately 90% clinical improvement.

Conclusion

Our findings demonstrate that anaphylaxis in SM is not restricted to classical triggers and that, in addition to venom allergy, drugs, foods, herbal products, hair dye, and solar exposure may also act as important atypical triggers. Patients with spontaneous anaphylaxis had higher baseline serum tryptase levels. Furthermore, the predominance of ISM across all anaphylaxis phenotypes suggests that severe anaphylactic reactions are not limited to advanced forms of SM.

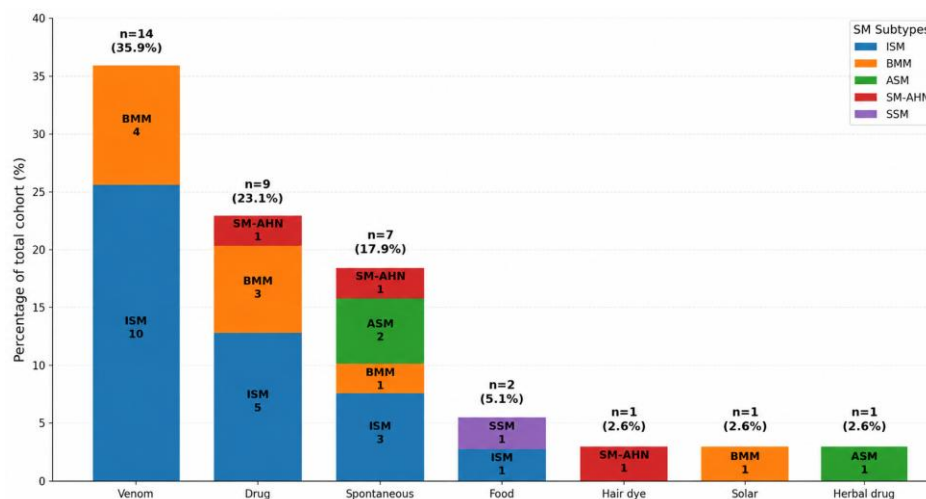


Figure 1. Distribution of Systemic Mastocytosis Subtypes According to Anaphylaxis Trigger Phenotypes

BMM: Bone Marrow Mastocytosis; **SM:** Systemic Mastocytosis; **ISM:** Indolent Systemic Mastocytosis; **SSM:** Smoldering Systemic Mastocytosis; **ASM:** Aggressive Systemic Mastocytosis; **SM-AHN:** Systemic Mastocytosis with an Associated Hematologic Neoplasm

*Food: shrimp, squid, flounder, and chicken

Variable	Spontaneous n=7	Venom n=14	Drug n=9	Food n=2 (shrimp, squid, flounder, chicken)
Age (years)	52.3 ± 15.5	50.9 ± 11.9	44.7 ± 12.4	45.5 ± 0.7
Female/Male (n)	3/4	1/8	5/4	1/1
Diagnosis delay, years (median)	3	7	5	1
SM subtype	ISM: 3, ASM: 2, SM-AHN: 1, BMM: 1	ISM: 10, BMM: 4	BMM: 3, ISM: 5, SM-AHN: 1	ISM: 1, SSM: 1
Presence of urticaria pigmentosa (n)	2	2	1	2
Serum tryptase, ng/mL	106.3 ± 61.7	49.0 ± 43.0	72.1 ± 63.6	112.0 ± 21.3
Total IgE, kU/L	70.6 ± 126.6	224.5 ± 286.2	171.2 ± 248.7	43.9 ± 4.5
Organomegaly (n)	2	2	3	1
Omalizumab use (n)	2	1	0	1
Genetic analysis (n)	Negative: 2, not tested: 5	Negative: 8, c- KIT+: 1, not tested: 5	Negative: 5, c- KIT+: 1, not tested: 3	Negative: 1, not tested: 1

Table 1: Clinical and Laboratory Characteristics of Anaphylaxis Trigger Phenotypes in Systemic Mastocytosis

***BMM:** Bone Marrow Mastocytosis; **SM:** Systemic Mastocytosis; **ISM:** Indolent Systemic Mastocytosis; **SSM:** Smoldering Systemic Mastocytosis; **ASM:** Aggressive Systemic Mastocytosis; **SM-AHN:** Systemic Mastocytosis with an Associated Hematologic Neoplasm*

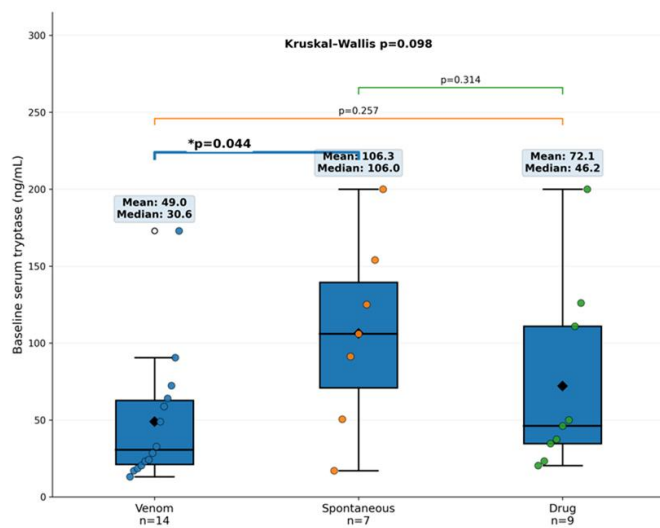


Figure 2. Comparison of Baseline Tryptase Levels in Venom, Drug, and Spontaneous Anaphylaxis

Conflicts of interest

The authors did not specify any links of interest.

Submission number: 000032

Prefix: P-16

Current Practices and Challenges in Mastocytosis Care among Dermatologists in Germany: Results of a Nationwide Survey

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Background

Mastocytosis is a rare and heterogeneous mast cell disorder requiring coordinated multidisciplinary management. However, real-world evidence on interdisciplinary care pathways and implementation of diagnostic and therapeutic recommendations in Germany remains limited. This study aimed to assess management strategies among dermatologists.

Method

The 14-item REDCap-based survey was distributed through the German Dermatological Society (DDG) newsletter between May 15 and May 31, 2025. Of 97 initiated surveys, 63 complete responses were further analysed.

Results

Participants were affiliated with university clinics (UC; 46.0%, 29/63), private practices (PP; 27.0%, 17/63), hospitals (H; 14.3%, 9/63), and specialized mastocytosis centers (SMCs; 9.5%, 6/63). Overall, 66.1% refer patients to other specialists for diagnostic work-up (54.0%, 34/63) or SMCs care (36.5%, 23/63). Serum baseline tryptase assessment was routinely performed in all settings, being 94.1%, 96.6%, 100.0%, 100.0% in PP, UC, H, SMCs respectively. Conversely, KIT D816V analysis was mainly performed in UC, H, SMCs but less frequently in PP, 86.2%, 88.9%, 83.3% vs. 35.3%. Bone marrow biopsy was mentioned by every second physician 52.4% (33/63) with median percentage of patients performed varying from 0% to 49%. Among the most common reasons for bone marrow investigation were abnormal blood counts (54.0%, 34/63), splenomegaly/hepatomegaly (44.4% 28/63), detected KIT mutation (42.9%, 27/63), tryptase ≥ 20 ng/mL (38.1% 24/63) and extensive skin involvement (36.5%, 23/63). Every second physician (46.0% 29/62) reported seeing patients with moderate to severe symptoms, and most respondents (90.3%, 56/62) considered targeted therapies beneficial. Validated PROMs to assess disease severity and quality of life impairment were used by 50.0%, while 32.3% weren't aware of mastocytosis-specific tools. Digital symptom-monitoring applications were perceived as useful (69.4%, 43/62). Main challenges faced by physicians were lack of experience from other specialists (46.8%, 29/62), missing multidisciplinary networks (45.2%, 28/62), lack of more effective treatment options or experience (32.3%, 20/62).

Conclusion

Diagnostic work-up in dermatology-led mastocytosis care remains heterogeneous, with serum tryptase widely established but KIT D816V testing and bone marrow biopsy used unevenly. Clearer diagnostic guidance, stronger multidisciplinary networks, education, and digital tools may help standardize care and identify patients requiring further investigations.

Conflicts of interest

The authors did not specify any links of interest.

Submission number: 000040

Prefix: P-17

Mast Cell Activation Syndrome: A Pediatric Case Report

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Background

Mast cell activation syndrome (MCAS) is defined by three diagnostic criteria: recurrent systemic symptoms of mast cell activation (typically anaphylaxis), a significant increase in a mast cell activation marker (most commonly serum tryptase), and a clinical response to anti-mediator therapy. MCAS is classified as primary (clonal), secondary, or idiopathic.

Method

We report a 16-year-old boy with allergic asthma and allergic rhinitis who experienced 14 episodes of anaphylaxis, characterized by abdominal pain, flushing, auricular swelling, cough, and dyspnea, since July 2022. Allergy workup revealed markedly elevated total IgE levels (1,580 kU/L) with polysensitization to inhalant allergens, including house dust mite, but no evidence of food allergy.

Results

Initially, symptoms were well controlled with H1-antihistamines and leukotriene receptor antagonists. However, recurrence of anaphylaxis occurred after discontinuation of therapy following more than six months without symptoms. During two episodes, serum tryptase increased significantly from baseline (7.9 to 22.4 µg/L, 4.5 to 15.6 µg/L), fulfilling the 20% + 2 µg/L criterion for mast cell activation. Genetic testing was negative for both the KIT D816V mutation and TPSAB1 copy number variation, and the REMAScore was low, arguing against clonal mast cell disease. As several episodes appeared to be associated with the consumption of histamine-rich foods, diamine oxidase (DAO) activity was assessed and found to be reduced. A basophil activation test, performed by incubating basophils from an atopic donor with the patient's serum to assess FcεRI-mediated activation, was negative. The patient resumed treatment with antihistamines and montelukast and adopted a low-histamine diet. Nevertheless, during azithromycin treatment for *Bordetella pertussis* infection, he experienced two episodes of anaphylaxis 2–3 hours after drug administration and a third episode later that week without an identifiable trigger. All episodes required treatment with an epinephrine autoinjector.

Conclusion

In the absence of evidence for clonal mast cell disease or a clearly identifiable secondary cause, the findings were consistent with idiopathic MCAS. Given the substantial disease burden associated with recurrent anaphylaxis, treatment with omalizumab was initiated. To date, no further episodes have occurred.

Conflicts of interest

The authors did not specify any links of interest.

Submission number: 000049

Prefix: P-18

Creation of a multidisciplinary mast cell disorder unit: clinical characteristics and diagnostic performance in an initial cohort with two-and-a-half years of follow-up

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Background

Systemic mastocytosis is a rare and heterogeneous condition with multisystemic manifestations that lead to delayed diagnosis and fragmented referral pathways. A multidisciplinary approach and integrated diagnosis are key to its accurate identification and management, which is why a dedicated unit has been established at our centre.

Method

The aim is to describe the clinical and diagnostic characteristics of patients with mastocytosis undergoing follow-up, following the creation of a specific multidisciplinary unit.

Results

Since the unit was established in January 2024, 69 patients have been followed up: 45 patients diagnosed with systemic mastocytosis, 10 of whom were newly diagnosed at the unit; 13 with cutaneous mastocytosis; and 11 patients with a strong suspicion of systemic mastocytosis who are currently under investigation.

93.3% of patients with a confirmed diagnosis of systemic mastocytosis presented with non-advanced mastocytosis, 66.6% with indolent mastocytosis and 33.3% with bone marrow mastocytosis. Three cases of advanced mastocytosis were diagnosed: two cases of aggressive mastocytosis and one case of mastocytosis associated with haematological disease, the latter patient having progressed to mast cell leukaemia.

The mean age at diagnosis was 50.2 ± 12.4 years, with 60.6% being male. Cutaneous involvement was present in 66.6% of patients, with this symptom being the primary clinical presentation in 54.5% of them. Anaphylactic reactions were recorded in 39.4% of cases. The primary etiologies prompting referral to the unit were hymenoptera stings (46.1%), followed by drug-induced reactions (30.8%) and food allergies (15.4%).

Hepatosplenomegaly was present in 21.2% of patients, with cytopenia observed only in the three patients with advanced disease. Three patients in our cohort had haematological malignancies: one MDS, one MDS/AML and one B-cell NHL.

All patients diagnosed at our centre tested positive for C-KIT D816V in peripheral blood, with positivity also documented in the bone marrow in 80%. In the bone marrow study, 90% of patients showed expression of aberrant markers by immunohistochemistry and 57.1% by flow cytometry, with mast cells identified using this technique in 90% of cases (9 patients).

Conclusion

The establishment of a multidisciplinary unit has enabled us to diagnose new cases and monitor patients with a condition that is underdiagnosed in our setting. The initial presentation, with clinical features at onset that do not usually include haematological abnormalities, highlights the need for a multidisciplinary approach to these patients and the importance of an integrated diagnosis.

Conflicts of interest

The authors did not specify any links of interest.

Submission number: 000050

Prefix: P-19

Clinical Characteristics of Children with Hereditary Alpha-Tryptasemia

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Background

Hereditary alpha-tryptasemia (HαT) is a genetic trait caused by increased TPSAB1 copy number and associated with elevated basal serum tryptase (BST). While increasingly recognized, pediatric data remain limited.

Objective: To characterize the clinical features of pediatric patients with HαT and elevated BST in a tertiary care setting.

Method

This cross-sectional study included children with genetically confirmed HαT. Demographic, clinical, laboratory, and family history data were extracted from medical records. Clinical manifestations, allergic comorbidities, anaphylaxis history, and BST levels were analyzed descriptively.

Results

Nine children (5 males; mean age 6.3 years, range 1–14) were identified between 2025 and 2026. BST ranged from 11.3 to 18.1 $\mu\text{g/L}$ (mean 15.5 ± 2.6 ; median 16.4). The $3\alpha 2\beta$ genotype was present in 55.6% and $2\alpha 3\beta$ in 44.4%, with comparable BST levels between groups. Atopic disease was observed in 77.8% of patients. Food allergy and allergic rhinitis were each present in 55.6%, while asthma and atopic dermatitis occurred in 33.3%. Anaphylaxis was reported in 66.7%, including one Hymenoptera-induced case. Cutaneous mastocytosis was diagnosed in two patients; one was initially evaluated after a hypotonic–hyporesponsive episode post-vaccination. KIT D816V mutation testing was negative in all cases.

Conclusion

H α T should be considered in children with persistently elevated BST, particularly in those with atopy, anaphylaxis, or suspected mast cell disorders. These findings highlight the clinical heterogeneity of H α T in childhood and support the role of genetic testing in selected patients.

Conflicts of interest

The authors did not specify any links of interest.

Submission number: 000069

Prefix: P-21

Clinicohematologic Dissociation in Aleukemic KIT Wild-Type Mast Cell Leukemia Presenting With Recurrent Anaphylaxis: Insights From Whole-Exome Sequencing

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Background

Mast cell leukemia (MCL) is the most aggressive form of systemic mastocytosis and is usually driven by activating *KIT* mutations, most commonly D816V. However, a clinically important subset is *KIT* wild-type (WT), for which the molecular basis and therapeutic vulnerabilities remain poorly defined. We report an aleukemic *KIT* WT MCL case showing marked clinicohematologic dissociation during imatinib therapy and investigate its genomic landscape by whole-exome sequencing (WES).

Method

Clinical, laboratory, and serial bone marrow (BM) findings were retrospectively reviewed. WES was performed on diagnostic BM DNA using SureSelect Human All Exon V5 capture

and Illumina HiSeq paired-end sequencing. Reads were aligned to GRCh37/hg19 and analyzed using a GATK-based pipeline. Variants were prioritized through a curated 200-gene mast cell/myeloid panel and an exome-wide search for novel HIGH-impact lesions. *KIT* hotspot regions were specifically re-interrogated with locus-level depth assessment.

Results

A 54-year-old man experienced eight anaphylactic episodes requiring emergency admission over the 11 months preceding diagnosis; the ninth episode led to BM examination and diagnosis of aleukemic MCL. At diagnosis, BM aspirate contained 71.6% mast cells, serum tryptase was >2,000 ng/mL, and aberrant mast cells expressed CD2, CD25, and CD117. Sanger sequencing was negative for *KIT* exon 8 and 17 mutations. Imatinib was initiated and escalated to 400 mg/day. During the subsequent 21 months, no further anaphylactic episodes, emergency visits, or admissions occurred, indicating durable control of mediator-related symptoms. In contrast, serial BM studies demonstrated progressive marrow disease, with cellularity changing from 50% at diagnosis to 40%, 80%, and 90%, while mast cell burden remained high (71.6%, 66.4%, 66.4%, and 76.4%). WES achieved a mean target coverage of 119.41× and robustly confirmed molecular *KIT* WT status, with no protein-altering variants in *KIT* exons 8, 9, 11, 13, or 17. Three candidate driver variants were prioritized: two novel *FBXW7* splice-acceptor variants (c.585-2A>T and c.585-1G>T; variant allele fractions, 11.6% and 12.2%) and *CMA1* p.Tyr219Asn (45.5%).

Conclusion

This case demonstrates clinically meaningful dissociation between mediator control and leukemic marrow progression in *KIT* WT MCL. Deep WES robustly excluded canonical *KIT* driver lesions and identified candidate *KIT*-independent alterations, particularly *FBXW7*. These findings support broader genomic profiling in *KIT* WT advanced mast cell neoplasms and suggest that this subgroup may represent a biologically distinct disease subset.

Conflicts of interest

The authors did not specify any links of interest.

Submission number: 000081

Prefix: P-22

Successful Desensitization to Pembrolizumab in Oncologic Patient with Systemic Mastocytosis: Case Report

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Background

Pembrolizumab is a humanized IgG4 monoclonal antibody approved for immunotherapy in several malignant tumors. Hypersensitivity to pembrolizumab and a successful desensitization protocol are described in literature. Systemic Mastocytosis (SM) is a disease characterized by the proliferation and accumulation of mast cells in bone marrow and/or other tissues, driven by the mutation of c-KIT. We describe the case of a new diagnosis of SM revealed by a SR to pembrolizumab in an oncologic patient.

Method

A 66 y.o. patient with advanced-stage of urothelial metastatic carcinoma was referred to our Allergy Unit for evaluation because of two episodes of immediate SR to pembrolizumab (erythema and hypotension) treated with high dose corticosteroids and antihistamines. He mentioned other two analogue SRs during CT scans with contrast media, which he later tolerated with adequate premedication. The patient underwent an allergological work-up. Skin prick test (SPT 25 mg/mL) and intradermal reaction test (IDT 0.25 mg/mL) for pembrolizumab were performed; SPT (undiluted) and IDT (1/10) for radio contrast media were also performed. Basal serum tryptase was measured.

Results

Skin tests for pembrolizumab and radio contrast media gave negative result, denying an IgE-mediated mechanism underlying the SR. Basal tryptase determination was of 40.3 ng/mL. REMA score resulted as 7, indicating the necessity of an haematologic evaluation. Bone-marrow biopsy confirmed the diagnosis of SM: multifocal dense infiltrates of > 15 mast cells in aggregates were detected as well as c-KIT mutation. According to these findings, auto-injectable adrenaline was prescribed. Moreover, considering the necessity of continuing treatment with pembrolizumab, the patient underwent a rapid 12-step desensitization protocol to gradually reach in 165 minutes the maximum dose of 200 mg that was well tolerated. The patient continued to be treated at the Oncology's Unit with pembrolizumab as palliative care without other SRs, but unfortunately his conditions worsened during the last months and he passed away in March 2026

Conclusion

Given the new haematologic diagnosis and the need to continue the oncologic treatment, desensitization to pembrolizumab has proven to be a safe and effective procedure, not only in

preventing IgE-mediated SRs but also for those mediated by non-IgE mechanisms (that was our patient's case) and in SM.

Conflicts of interest

The authors did not specify any links of interest.

POSTER DISCUSSION TOPIC 3

MAST CELL DISORDERS AND INSECT ALLERGY

Submission number: 000023

Prefix: P-24

Clinical Characteristics of Hereditary Alpha-Tryptasemia and Factors Potentially Associated With Anaphylaxis in a Spanish Cohort

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Background

Hereditary alpha-tryptasemia (HAT) is a common genetic trait caused by increased germline TPSAB1 copy number and has been associated with mast cell activation-related symptoms and anaphylaxis. We aimed to characterize the clinical and sociodemographic profile of patients with HAT and to explore factors potentially associated with anaphylaxis at presentation.

Method

We conducted a retrospective cross-sectional study including patients with molecularly confirmed HAT diagnosed at a tertiary referral hospital in Cáceres, Spain, between 2022 and 2025. Demographic, clinical, laboratory, and genetic variables were collected. Bivariate analyses and multivariable logistic regression models were performed to evaluate factors associated with anaphylaxis.

Results

Seventy-nine patients with confirmed HAT were included. Mean age was 45.4 ± 19.4 years and 62.0% were female. Most patients (97.5%) presented multisystem manifestations, with cutaneous symptoms being the most frequent presentation. IgE-mediated allergy was identified in 67.1% of patients and systemic mastocytosis in 5.1%. Anaphylaxis was the presenting manifestation in 19.0% of cases. In multivariable analyses, male sex (adjusted OR 3.05; 95% CI 0.94–9.91), IgE-mediated allergy (adjusted OR 4.03; 95% CI 0.82–19.83), and the $3\alpha/2\beta$ TPSAB1 genotype (adjusted OR 2.83; 95% CI 0.85–9.48) showed trends toward a higher probability of anaphylaxis, although none reached statistical significance.

Conclusion

Patients with HAT showed a high burden of multisystem manifestations and a relevant frequency of anaphylaxis. Male sex, IgE-mediated allergy, and the $3\alpha/2\beta$ genotype emerged as potential factors associated with anaphylaxis. Given the retrospective design, absence of a

control group, and limited number of events, these findings should be considered exploratory and hypothesis-generating.

Conflicts of interest

The authors did not specify any links of interest.

Submission number: 000027

Prefix: P-25

Safety and Clinical Utility of Sting Challenge Testing in Patients with Clonal Mast Cell Disorders and Hymenoptera Venom Allergy

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Background

Patients with clonal mast cell disorders (cMCD), particularly mastocytosis, are at increased risk of severe systemic reactions following Hymenoptera stings. Venom immunotherapy (VIT) is considered the treatment of choice and is frequently maintained indefinitely in these patients. Nevertheless, confirming individual protection remains challenging. The sting challenge test (SCT) provides the most direct assessment of VIT effectiveness, although data regarding its safety in mastocytosis are limited.

Method

A retrospective study was performed in patients with cMCD and Hymenoptera venom allergy receiving VIT at Hospital Universitario Reina Sofía (Córdoba, Spain) between January 2020 and January 2026. Demographic data, mast cell disease subtype, baseline serum tryptase, culprit venom, severity of the initial sting reaction, SCT findings, and outcomes after subsequent field stings were reviewed.

Results

Twenty-three patients were included, 18 of whom were male (78.3%), with a mean age of 54.7 years. Bone marrow mastocytosis was the most frequent diagnosis (21/23, 91.3%), while two patients (8.7%) were diagnosed with monoclonal mast cell activation syndrome. Median baseline serum tryptase was 11.6 ng/mL (range 8–36.8 ng/mL).

The culprit insect was *Polistes* spp. in 20 patients (87.0%) and *Apis mellifera* in 3 patients (13.0%). Four *Polistes*-allergic patients also showed sensitization to *Vespula*. The initial sting reaction was classified as Müller grade IV in 16 patients (69.6%).

A total of 30 sting challenge tests were performed after a median maintenance period of 46.5 months (range 4–180 months), with several patients undergoing repeated challenges. All controlled stings were tolerated without systemic reactions.

Following SCT, 13 patients experienced accidental field stings. Ten patients (77%) remained completely asymptomatic, whereas three (23.1%) developed only mild grade I reactions. No severe reactions were reported after either controlled or field stings.

Conclusion

In patients with clonal mast cell disorders and Hymenoptera venom allergy receiving VIT, SCT was safe and demonstrated a high level of clinical protection. The favorable outcomes observed after subsequent field stings further support the usefulness of SCT in selected high-risk patients.

Conflicts of interest

The authors did not specify any links of interest.

Submission number: 000051

Prefix: P-26

When Hymenoptera Venom Anaphylaxis Unmasks Hidden Systemic Mastocytosis

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Background

Mastocytosis (SM) is a clonal mast cell disorder characterized by abnormal mast cell proliferation and accumulation, with broad clinical heterogeneity. In adults, hymenoptera venom anaphylaxis (HVA) represents a frequent and clinically relevant manifestation, and may constitute the initial presentation of the disease, particularly in bone marrow mastocytosis (BMM). The aim of this study was to describe the clinical, biological, immunological, and molecular profile of patients with SM and HVA.

Method

A retrospective, descriptive, observational study was conducted including patients with a confirmed diagnosis of SM evaluated at the Department of Allergology of HURS. Demographic, clinical, analytical, immunological, and molecular variables were analyzed in those with a history of HVA.

Results

Between 2017 and 2025, SM incidence among 251 HVA patients was 9.2%. 23 patients were included: 73.9% male, median age 57 years. Grade III–IV anaphylaxis occurred in 91.3% at the index episode; all had REMA score ≥ 2 . Basal tryptase: $<11.4 \mu\text{g/L}$ in 43.5%, $\geq 11.5 \mu\text{g/L}$ in 56.5%. SM variants: BMM 87%, indolent SM (ISM; 8.7%) and SM with associated hematological neoplasm (SM-AHN; 4.3%). KIT D816V mutation: 95.2% positive; peripheral blood positivity: 26.3%. Mast cell restriction in 87%; aberrant phenotype (CD25+/CD2+) in 81.3%. Predominant sensitization: *Polistes dominula* 69.6%, *Polistes/Vespula* spp. 21.7%, *Apis mellifera* 8.7%. IDs positivity: *Polistes dominula* 38.1%, *Vespula* spp. 19.0%, *Apis mellifera* 4.8%. Median sIgE: *Polistes dominula* 1.05 kUA/L; *Vespula* 0.17 kUA/L; *Apis mellifera* 0.03 kUA/L. BAT positive in 3 of 4 cases.

Conclusion

In our patient population, more than 9% of patients with HVA have an established diagnosis of SM, and HVA may represent the disease's debut, even in the presence of normal basal tryptase levels and without suggestive cutaneous lesions. The REMA score is a key screening tool that, together with molecular and immunological evaluation, enables more accurate diagnosis, appropriate risk stratification, and optimized therapeutic management.

Conflicts of interest

The authors did not specify any links of interest.

Submission number: 000028

Prefix: P-27

Down-regulation of Tryptase levels after an accelerated Hymenoptera VIT protocol

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Background

Hymenoptera venom immunotherapy (VIT) is the only disease-modifying treatment for allergic reactions to Hymenoptera stings. Accelerated or rush protocols for VIT should be preferred to rapidly induce desensitization and improve patients' (pts) quality of life. Monitoring basal serum tryptase (BST) levels in pts with a history of severe systemic reactions (SSR) to a Hymenoptera sting is recommended to identify those at higher risk of anaphylactic reactions to occasional Hymenoptera stings. It has been reported that the risk of developing SSR according to BST in Hymenoptera-allergic pts can be stratified into three risk classes: low with BST $< 4 \text{ ng/dL}$, intermediate with BST between 4 and 7.5 ng/dL , and high with BST $> 7.5 \text{ ng/dL}$.

Method

We report our experience on 24 pts, 20 males (m) and 4 females (f), with a history of SSR after a Hymenoptera sting.

Hymenoptera VIT was carried out with aluminum adsorbed venom extracts according to an accelerated protocol to reach the maintenance dose of 100 mcg/100.000 SQ-U in two days.

Each patient received VIT doses at 30-minute intervals on the first and second day. The first maintenance dose was administered after 15 days with a cumulative dose of 100.000 SQ-U of venom extract. BST levels were evaluated before the accelerated induction phase (TO) and after the first maintenance dose (T1).

Results

All pts tolerated VIT and successfully reached the maintenance dose.

BST levels were reduced between TO and T1 in 14/20 pts. The variation of BST levels from T0 to T1 in four pts induced reduction of the risk class: in one the risk was reduced from high to low (BST from 12.30 to 3.9 ng/dL), in another from high to intermediate (BST from 8.9 to 7.4 ng/dL), both treated with Apis VIT extract. Finally, two pts, treated with Vespula VIT, presented a risk reduction from intermediate to low (BST from 4.3 to 1.6 ng/dL and BST from 4.5 ng/dL to 3.00 ng/dL, respectively). The other 10 pts presented a reduction in BST levels without altering the risk class for developing SSR.

One of the pts treated with Apis VIT, with BST 5.7 ng/dL at TO and 4.9 ng/dL at T1, even with no reduction of the risk class, tolerated an occasional bee sting, presenting only a mild local reaction.

Conclusion

Serum tryptase is a biomarker of mast cell hyperreactivity, which can cause anaphylaxis.

Down-regulation of BST levels after beginning VIT could contribute to tolerance to occasional Hymenoptera stings, even at early stages.

Conflicts of interest

The authors did not specify any links of interest.

Submission number: 000044

Prefix: P-28

Effectiveness of VIT in Mast Cell Disorders: Real-World Experience from an Italian Center

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Background

Venom immunotherapy (VIT) is the only effective treatment for Hymenoptera venom allergy (HVA), with an 85-95% success rate.

People with mast cell disorders are at greater risk of anaphylaxis following Hymenoptera stings, and guidelines advise lifelong immunotherapy.

The aim of our study was to evaluate VIT effectiveness in a cohort of patients with mastocytosis and/or hypertryptasemia.

Method

A retrospective observational study was performed. Clinical records of patients with hypertryptasemia (defined as serum tryptase >11.4 ug/ml) or mastocytosis treated with subcutaneous VIT since 2005 were analyzed.

Results

The cohort included 9 patients with isolated hypertryptasemia (21%) and 33 with mastocytosis (79%), for a total of 42 patients (12 women, 30 men), with median serum tryptase of 17.0 µg/L (IQR 13.1-21.8).

Median age at VIT initiation was 58 years (IQR 50-67).

All patients were treated with a cluster induction protocol and regular maintenance doses (1st year: 100ug q4w, 2nd: q6w, 3rd: q8w, ≥4th: q12w), except for one patient treated with a doubled dose (200ug q12w) after a systemic reaction (SR) following a Hymenoptera sting during VIT.

No patient needed pre-medication; no reactions to VIT were documented.

The VIT courses administered were: V. crabro 6 patients (14%), A. mellifera 6 (14%), Polistes spp. 16 (38%), Vespa spp. 9 (21%), Polistes+Vespa 5 (12%).

25 out of 42 patients (59.5%) were re-stung during VIT.

Among the 25 re-stung patients, 11 were stung only by the culprit insect without reaction, 6 only by other species without reaction, 4 by both culprit and other species without reaction. 4

experienced SRs after stings from other species; one of these had also been re-stung by the culprit insect without reaction.

Overall, 16 patients had documented re-stings by the culprit insect during VIT without reaction.

Patients with SRs underwent evaluation for additional HVAs: one patient started a second concurrent VIT course; two patients refused additional VIT; one patient was found not to be allergic to other Hymenoptera species, and the VIT dose was doubled.

Conclusion

In this cohort of patients with hypertryptasemia and/or mastocytosis, no SRs occurred following documented re-stings by the Hymenoptera for which VIT was prescribed. Despite the limited sample size and retrospective design, these results suggest that VIT provides substantial protection in this high-risk population and are consistent with effectiveness rates reported in literature for patients without mast cell disorders.

Conflicts of interest

The authors did not specify any links of interest.

Submission number: 000080

Prefix: P-29

Systemic Reactions after Hematophagous Insects Bites: Mast Cell Disorders should be ruled out

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Background

Even if rare, systemic reactions (SR) after the bite of different Hematophagous Insects have been reported. The bite from horse flies (*Tabanus*- *Tabanidae* family) can rarely cause large local reactions and also anaphylactic reactions. Three salivary major allergens have been identified: Tab y 1 (Apyrase), Tab y 2 (Hyaluronidase) and Tab y 5 (Antigen 5). The latter shares low sequence identity with Ves v 5, the Antigen 5 expressed in yellow jacket venom. Serum specific IgEs to *Tabanus spp* is the only available diagnostic tool. In literature, anecdotal SRs to louse flies (*Hippobosca equina*) bites are reported and one report consisted of an anaphylactic shock in a patient with mastocytosis. No allergological diagnostic tests are available.

Method

We report 3 cases of SRs occurred after horse flies bites and a rarer case of SRs to *Hippobosca equina* bites observed in our clinics

Results

Horse flies bites: Clinical presentations consisted in SRs of grade II, III and IV according to Mueller, respectively. In all patients serum specific IgEs for *Tabanus* were positive with values ranging from 0.51 to 4.52 kUa/L while basal serum tryptase was normal and REMA score was below 2. Serum specific IgEs for Ves v 5 were measured in two patients with negative result.

Hippobosca equina: a 50 years old woman bitten by louse flies reported several episodes of pre-lipotimia and palpitation; once she experienced clear hypotension, cold sweating, nausea and urge to defecate. In this case basal serum tryptase was found to be 39.4 ng/mL with REMA SCORE of 5. The diagnosis of systemic mastocytosis was confirmed after the haematological study.

Conclusion

These cases highlight the importance of investigating systemic mastocytosis when anaphylactic reactions occur after Hematophagous insects bites. Furthermore, access to specific, high-quality tests is essential to improving diagnostic accuracy in non-Hymenoptera hypersensitivity.

Conflicts of interest

The authors did not specify any links of interest.

POSTER DISCUSSION TOPIC 4

INSECT VENOM ALLERGY: EPIDEMIOLOGY AND DIAGNOSIS

Submission number: 000016

Prefix: P-31

Trait anxiety and prior epinephrine experience as predictors of delayed self-administered epinephrine in anaphylaxis: a prospective cohort study

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Background

Prompt intramuscular epinephrine is the recommended first-line treatment for anaphylaxis, yet self-administration by trained, equipped patients is frequently delayed or omitted — a modifiable contributor to morbidity and mortality. Psychological factors, including trait anxiety, have been proposed as barriers but rarely quantified prospectively against physician-verified events. We aimed to identify modifiable, patient-level predictors of delayed self-administered epinephrine in adults prescribed an epinephrine autoinjector (EAI).

Method

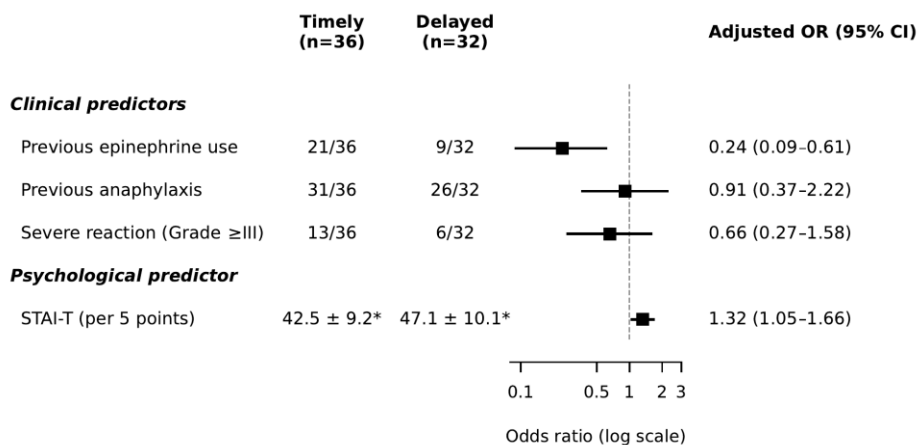
In a single-centre prospective cohort study at a tertiary allergy referral centre, 68 adults prescribed an EAI underwent baseline assessment including the State-Trait Anxiety Inventory–Trait subscale (STAI-T) and the Generalized Anxiety Disorder-7 (GAD-7) scale. Patients receiving venom immunotherapy or omalizumab were excluded. Anaphylaxis events were captured prospectively over a mean follow-up of 32 months and verified by study physicians. The prespecified primary outcome was epinephrine given >15 minutes after the first clinical indication of anaphylaxis, or omitted despite indication. Patient-level logistic regression identified predictors.

Results

The cohort comprised 68 adults (mean age 45.8 years; 54% female; 59% venom-triggered), each with ≥ 1 physician-verified anaphylaxis event (84 events total). Epinephrine was delayed or omitted in 32 of 68 patients (47%). In multivariable analysis, prior personal experience with epinephrine administration was independently protective (adjusted odds ratio [OR] 0.24; 95% confidence interval [CI] 0.09–0.61; $p=0.003$), and higher trait anxiety independently predicted delay or omission (adjusted OR 1.32 per 5-point STAI-T increase; 95% CI 1.05–1.66; $p=0.015$). Reaction severity, prior anaphylaxis without epinephrine use, formal EAI training, and trigger type were not independently predictive.

Conclusion

In this adult, venom-dominant cohort, prior personal experience with epinephrine and lower trait anxiety — not anaphylaxis experience alone — were independently associated with timely self-administration. Preparedness should extend beyond symptom recognition and device training to experiential learning and psychological readiness. The findings support evaluating brief trait-anxiety screening at EAI prescription, prioritised hands-on training for epinephrine-naïve patients, and needle-free intranasal epinephrine for high-anxiety patients. Confirmation in larger food-allergic and paediatric cohorts is required.



Multivariable logistic regression: adjusted predictors of delayed or omitted self-administered epinephrine (patient-level analysis, N=68). STAI-T, State-Trait Anxiety Inventory–Trait subscale.

Conflicts of interest

The authors did not specify any links of interest.

Submission number: 000039

Prefix: P-32

Risk factors for severe systemic wasp and honeybee sting reaction in children in Hungarian population

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Background

Hymenoptera venom allergy is the leading cause of anaphylactic reactions in adults and the second most common cause in children. Previously various risk factors were described in the literature for adults. This study analyses the correlation between details of the history, diagnostic test results and the severity of the allergic reaction in children. Furthermore, it tries to identify potential risk factors for severe sting reaction.

Method

142 children receiving immunotherapy (IT) for either wasp or honeybee or both venom allergy between 2012-2025 were included in this retrospective study at Department of Paediatrics, in Budapest, Hungary. Their systemic reactions were classified according to Mueller classification and it was analysed with regard to age, sex, latency time (between insect sting and beginning of the reaction), skin symptoms, the amount of specific IgE antibodies to venom extracts and components, and the concentration of venom inducing positive intracutan test. The main outcome variable was the grade of the systemic sting reaction and as it was ordinally defined logistic regression was used and calculations were controlled for the patients age, sex and the type of insect.

Results

Clinical history is essential for the sting allergy diagnosis and subsequent decision for immunotherapy for patients with hymenoptera allergy. Previous studies identified potential risk factors for severe sting reactions in adults, which were latency time, absence of skin reaction and raised baseline tryptase. Previous study results showed skin symptoms are more common in children than adults. On the contrary to adults studies in our paediatric population latency time did not appear to be a factor, and there was no association between the degree of sensitisation and the severity of a sting reaction. In children sting reactions most often falls into grade II-III. category. Grade IV reactions are less common in children, compared to adults.

Conclusion

Presentation of sting reactions is different in children from adults. In our population angioedema was the most common symptom. Latency time and degree of sensitisation was not a significant factor in children as it was in adults. Consequently detailed clinical history is crucial.

Conflicts of interest

The authors did not specify any links of interest.

Submission number: 000082

Prefix: P-33

Characteristics of paperwasp sensitized children in Hungary

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Background

Allergic reactions to vespid stings are one of the major causes of IgE-mediated anaphylaxis. *Vespa* and *Vespula* venoms are closely related; *Polistes* venom is more distantly related and its allergens are less well studied.

Discriminating paperwasp (*Polistes dominula*) and other *Vespula* spp. venom allergy is of growing importance worldwide, as systemic reactions to either species' sting can lead to severe outcomes. Administering the correct allergen-specific immunotherapy is therefore a prerequisite to ensure the safety and health of venom-allergic patients. Adding additional allergens to the diagnostic allergen panel improved component-resolved diagnostics of Hymenoptera venom allergy diagnosis.

Method

Since 2022 paperwasp extract and Pol d1 and Pol d5 components have been added to our immunoblot testing which have been used for testing possible venom allergic children. As the company which provide venom immunotherapy (VIT) in Hungary only produces VIT for european wasp and honey bee therefore skin test was only available for those. Recently, we had the chance to do paperwasp skin test with an extract provided by an other company, so we have done intradermal test for 26 children.

Results

2 patients of the 26 have been tested negativ for paperwasp, 5 of the 26 have been positive only at the last tested concentration, all other (19 of 26) have been considered significantly positive for paperwasp. 24 of 26 patients have been also skin tested for european wasp: 5 of 24 patientst were completely negative for european wasp, 8 of 24 have been positive only at the last tested concentration. This shows significant cross reactivity between paperwasp and europen wasp in Hungarian population.

Conclusion

Venom immunotherapy (VIT) is indicated in patients with anaphylaxis or generalised skin symptomp and detectable venom IgE. Identified patients will receive paperwasp VIT within a framework of a clinical study.



Conflicts of interest

The authors did not specify any links of interest.

Submission number: 000052

Prefix: P-34

Basophil Activation Test in Hymenoptera venom allergy: from diagnosis to therapeutic decision-making. A case series of three patients

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Background

Diagnosis of Hymenoptera venom allergy relies on algorithms combining clinical presentation, skin testing (ST) and in vitro investigations: IgE to marker allergens and, if needed, basophil activation test (BAT). A 4- to 6-week delay between the reaction and ST or BAT is recommended, though debated. IgE can be reliably measured at any time point. This codified approach may not be applicable in real-world situations. We report a series of three cases successfully diagnosed through a personalized approach including BAT.

Method

Three adult females referred for anaphylaxis (Mueller grade II-IV) after a suspected Hymenoptera sting.

Results

Case 1: 46 years, swallowed an unidentified insect from a can of soda, had previously developed a large local reaction after a wasp sting. Intradermal testing was only positive to 1 µg Vespula and Polistes extracts, negative for honeybee. IgE was 0.22 kUA/L for Vespula, undetectable for Polistes and honeybee. BAT was positive for Vespula (15% activated basophils), negative for Polistes and honeybee. Venom immunotherapy (VIT) for Vespula was initiated.

Case 2: 37 years, honeybee sting. A laboratory technician, she provided two specific IgE reports. IgE to bee and Vespula venom extracts were 2.4 kUA/L and 2.2 kUA/L immediately after the sting, 47 kUA/L and 2.5 kUA/L six months later. Genuine double sensitization was confirmed (IgE to Api m 1, Api m 10, Ves v 5 and Ves v 1 at concordant levels with the corresponding extracts). BAT provided clues for functional relevance: markedly positive for bee venom (93%) but not wasp venom (11%). sBT was 2.8 µg/L. Bee VIT was initiated.

Case 3: 70 years, wasp sting, no previously reported allergic disease, died after 4 days of intensive care. BAT performed 72 hours after the sting showed 61% activation with Vespula venom extract (controls :3% unstimulated, 53% anti-RFcepsilon I). Fatal anaphylaxis to Vespula venom was established as the cause of death.

Serum baseline tryptase was 3.5, 2.8 and 3.3 µg/L, respectively.

Conclusion

This case series highlights personalized approaches and the value of BAT, including as early as 72 hours post-reaction, for differential diagnosis, culprit identification, VIT selection in cosensitization, and even establishment of the cause of death.

Conflicts of interest

The authors did not specify any links of interest.

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Clinical Utility of Basophil Activation Testing in Patients with Double Sensitization to Polistes dominula and Vespula spp

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Background

In Southern Europe, double sensitization to *Vespula spp* and *Polistes dominula* venoms is highly frequent in patients with allergic reactions to Hymenoptera stings. This condition makes the choice of the correct extract for Venom Immunotherapy (VIT) challenging, and traditional diagnostic tools can be insufficient to discriminate the real culprit venom due to the high cross-reactivity between homologous allergens. The aim of this study is to evaluate the reliability of the Basophil Activation Test (BAT) in the choice of VIT extract in doubtful *Polistes-Vespula* cases, compared with the performance of traditional IgE diagnostic tests.

Method

In 14 patients attending our center with a history of systemic reactions after a Hymenoptera sting and with positive *in vivo* and *in vitro* tests for both *Vespula spp* and *Polistes dominula*, BAT was also performed before starting VIT. In these patients, the extract for VIT was selected according to clinical history, specific IgE (sIgE) determination, skin testing (ST) and in some cases on the basis of sIgE-inhibition test. We retrospectively evaluated the agreement between BAT results and the VIT prescription. To uniformly evaluate concordance among tests, the ratio between the higher and lower percentage values (BATmax/BATmin) was calculated.

Results

Of 14 patients, 3 were excluded due to negative BAT results (< 10%) to all venoms. The analysis of the BATmax/BATmin ratio revealed a clear stratification of the 12 patients. For ratio values of 1.77 and above, the BAT proved to be highly reliable; in 100% of these cases, a single VIT was unequivocally prescribed, perfectly concordant with the species venom associated with the higher BAT value.

For ratio values below or equal to 1.30, the test was not sufficiently discriminant; of note, in 62.5% of these cases not even sIgE, ST or sIgE-inhibition test was able to identify a single venom and the prescription of a double VIT was necessary.

Conclusion

Although limited by the small sample size of our study, a BATmax/BATmin ratio ≥ 1.77 appears to be a useful and reliable tool in cases of *Polistes/Vespula* double positivity to guide the choice of VIT extract.

Conflicts of interest

The authors did not specify any links of interest.