

OCCUPATIONAL ASTHMA AND FOOD ALLERGY CAUSED BY *TYROPHAGUS PUTRESCENTIAE*



29th Congress of the European Academy of Allergy and Clinical Immunology
London, June 5-9, 2010

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BACKGROUND:

Occupational asthma represents up to 15% of asthma with onset in adulthood. Dust mites are a recognized trigger, and may be implicated in 5% of all, but its prevalence among farm workers and bakers is much higher. Cross reactivity between seafood and mites has also been widely described.

CASE REPORT:

Our patient is a 43 y.o. male whose main task at work for the last 13 years consisted on picking up dry hams at the ham warehouse and transport it to stores. Five years ago, he developed persistent rhinoconjunctivitis, cutaneous itchiness and whistling shortness of breath at his work place that improved on weekends and holidays. Three years ago he suffered two different episodes of lips angioedema and oral pruritus immediately after the intake of boiled shrimps.

IN VIVO STUDY:

Extract		Extract	
<i>D. pteronyssinus</i>	2+	<i>L.destructor</i>	1+
<i>D. farinae</i>	2+	<i>Eurogliphus</i>	2+
<i>Blatta orientalis</i>	2+	<i>Blomia tropicalis</i>	3+
<i>T. putrescentiae</i>	3+	Shrimp	2+
<i>Acarus siro</i>	3+	Dry ham mites	3+
<i>D. microceras</i>	2+	Pollens, dander, molds	-

Spirometry (MasterScope 4.0®)

	Real	Reference	%
FVC	4.260	4.763	89
FEV ₁	3.630	3.903	93
FEV ₁ / FVC	85	82	

Sample examination: Optical microscopy



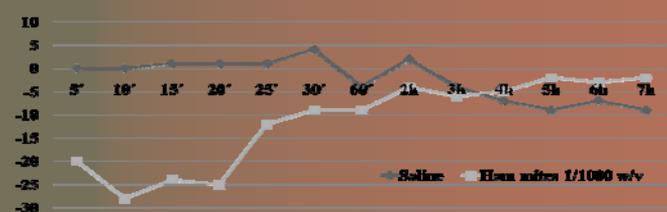
FE_{NO} (ppb, NIOX®)

68

Metacholine challenge (PC₂₀, mg/ml)

7, 68

Specific bronchial challenge with *T.putrescentiae*

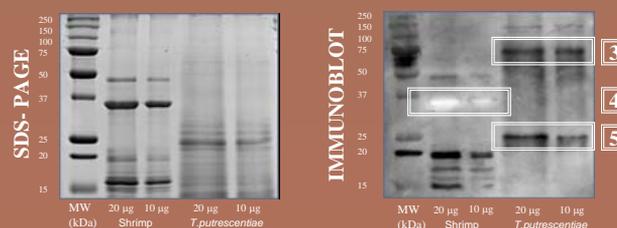


IN VITRO STUDY:

	sIgE (CAP Phadia)	(UI/ml)	sIgE (ELISA)	OD
1	<i>T. putrescentiae</i>	12,5	<i>T. putrescentiae</i>	1.2
	Shrimp	3,11	Shrimp	1.724
2	r Pen a 1	<0,35	n Pen i 1*	1.188
	<i>P. notatum, A. fumigatus, B. orientalis</i>	<0,35	n Pen i 1*	0.760

1 Allergy to *T. putrescentiae* and Shrimp

2 Contradictory results about Tropomyosin sensitization

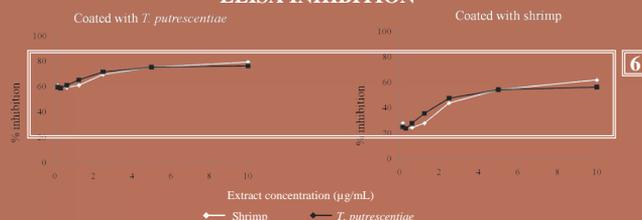


3 Unknown protein, also present when the assays were performed under reducing conditions to rule out the possibility of being a tropomyosin dimer (data not shown)

4 Confirmation of tropomyosin (34kDa) sensitization. Other relevant proteins in shrimp also recognised by the patient.

5 Main protein recognised in *T. Putrescentiae*, which may be Tyr p 3 (25kDa), a major allergen of this mite.

ELISA INHIBITION



6 Inhibition >50% in both directions, what suggests that both sensitizations are related. We also performed Immunoblot Inhibition assays but were inconclusive (data not shown)

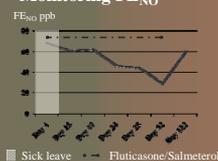
DIAGNOSIS, TREATMENT AND EVOLUTION:

Occupational Asthma caused by *Tyrophagus putrescentiae* and Shrimp food allergy.

Respro® Mask at workplace, Nasal Budesonide 100µg/nostril/24h, Inhaled Salmeterol/Fluticasone 25/125: 2-0-2 and Subcutaneous Specific Immunotherapy with *T.putrescentiae*.

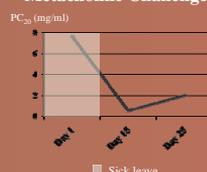
Crustacean avoidance and rescue medication in case of unaware intake.

Monitoring FE_{NO}



FE_{NO} monitoring demonstrates the anti-inflammatory effect of inhaled corticosteroids with a decrease from 68ppb to 29 ppb after 3 months of treatment and an increase after 1 month it was quitted.

Metacholine Challenge



The patient's lung function was also followed with metacholine challenges. An increase in bronchial hyperreactivity was recorded 15 days later the patient went back to work with a raise for the PC₂₀ from 7.62 mg/ml to 0.53 mg/ml.

CONCLUSIONS:

We present a case of occupational asthma caused by *T. putrescentiae* and crustacean allergy in a dry ham delivery worker. Both sensitizations seem to be related but the role of tropomyosin in this case is limited, thus we think there might be a common protein to both sources which may be the culprit allergen, even though we could not identify it.