tomography of the chest were without pathological findings. Peripheral blood counts and C-reactive protein were normal in the wife and slightly elevated in her husband.

Initial differential diagnosis included sporotrichoid cutaneous leishmaniasis, sporotrichosis, and ecthyma. Haematoxylin and eosin stains of punch biopsies of both patients were rich in plasma cells and revealed large parasite-loaded histiocytes. Polymerase chain reaction (PCR) specific for *Leishmania* was done with skin biopsies from both patients. Sequencing of the PCR products revealed high sequence identity to *Leishmania (Viannia) braziliensis* in both cases.

Leishmania species are parasites transmitted by bites from sandflies (*Phlebotomus* species in the Old World and *Lutzomyia* species in the New World) and can cause disseminated visceral, mucocutaneous, cutaneous, or asymptomatic infections affecting around 2.4 million patients every year.[1] The small ulcers observed in both patients are a typical feature of American leishmaniasis.[2]

Infection with *L. braziliensis* complex is associated with cutaneous as well as mucocutaneous leishmaniasis[3] and requires systemic therapy. There were several intravenous treatment options, such as the pentavalent antimonials, pentamidine, and liposomal amphotericin B, some of them with considerable toxicity.[3] Miltefosine (Impavido®, Æterna Zentaris, Quebec, Canada), originally introduced as a successful oral treatment for visceral leishmaniasis,[4] had already been used successfully in New World leishmaniasis.[5] Both of our patients received oral miltefosine at a dose of 50 mg b.i.d. for 28 days on an outpatient basis. Treatment was tolerated excellently, except for mild diarrhoea in the last week of treatment, a common side-effect.[1]

Four weeks after the initiation of therapy, the lesions were markedly reduced and had disappeared 8 weeks later, leaving atrophic scars (fig. 1, right). The lymph node swelling had already disappeared after 4 weeks. Hypergranulation of the husband's two large ulcers of the lower right required additional topical corticosteroid treatment for 1 month. At a follow-up visit after 12 months, the clinical situation in both was stable with a marked improvement of the cosmetic outcome.

Miltefosine interacts with *Leishmania* phospholipid synthesis.[1] First successfully used against Kala Azar in Indian patients,[4] the efficacy in the treatment of American leishmaniasis was first shown in a study in 72 Colombian soldiers.[5] It is currently marketed in Germany, India, Bangladesh, Pakistan, and South America.[6] Because miltefosine is teratogenic, women of child-bearing age need contraception.[2] Apart from that, miltefosine is an ideal treatment for all forms of leishmaniasis, requiring systemic treatment, characterized by a favourable side-effect profile for patients treated on an outpatient basis.

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References

1 Soto J, Soto P. Miltefosine: oral treatment of leishmaniasis. *Expert Rev Anti Infect Ther* 2006; **4**: 177–185.
2 Murray HW, Berman JD, Davies CR, Saravia NG. Advances in leishmaniasis. *Lancet* 2005; **366**: 1561–1577.
3 Hepburn NC. Cutaneous leishmaniasis: current and future management. *Expert Rev Anti Infect Ther* 2003; **1**: 563–570.
4 Jha TK, Sundar S, Thakur CP *et al*. Miltefosine, an oral agent, for the treatment of Indian visceral leishmaniasis. *N Engl J Med* 1999; **341**: 1795–1800.
5 Soto J, Toledo J, Gutierrez P *et al*. Treatment of American cutaneous leishmaniasis with miltefosine, an oral agent. *Clin Infect Dis* 2001; **33**: E57–E61.
6 Æterna Zentaris. *Impavido® – Product Sheet* [accessed on 25th April 2006 from URL: http://www.aeternazentaris.com].

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Adverse reaction to specific immunotherapy for house-dust mite in a patient with *Anisakis* allergy

Editor

It is well known that *Anisakis* simplex can act as a food allergen and can induce IgE-mediated reactions, above all urticaria and angio-oedema but also anaphylaxis.[1] In addition, a gastroallergic form of anisakiasis[2] has been described, inducing allergic and gastric symptoms after contact with live parasites.[3]

We present a patient with *Anisakis* allergy who developed abdominal pain, nausea, and vomiting during sublingual/

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swallow immunotherapy (SLIT) for house-dust mite to treat allergic asthma.

A 39-year-old woman came to our observation for allergic bronchial asthma. Positive results were obtained to skin prick test (SPT) with common inhalant allergens, such as graminacee (++–), olive, cypress (++–) and house-dust mite (+++–), carried out and interpreted in accordance with the European Academy of Allergology and Clinical Immunology.[4]

SLIT for house-dust mite was prescribed. After about 1 month of therapy, the patient reported abdominal pain, nausea, and vomiting. The symptoms developed immediately after taking the daily dose of vaccine, and suspension of the SLIT was decided; the symptoms subsided after 3 months.

On the suspicion that the gastrointestinal symptoms were determined by a concomitant food allergy, SPT with standard food extract and with a commercial extract were carried out. These tests showed sensitization to *Anisakis* allergens. At the same time, RAST to specific IgE against *Anisakis*, mackerel, sardine, octopus, mussel, shrimp, and codfish were evaluated according to the CAP system (Pharmacia, Uppsala, Sweden). Positive RAST were found for *Anisakis* simplex, whereas specific IgE antibodies against sea fish were not found.

Moreover, it is important to underline that allergenic cross-reactivity between *Anisakis* simplex and other nematodes, such as arthropods, is well known.[5] In a recent work, Johansson *et al.* underlined an association between sensitization to *Anisakis* simplex and four different dust mite species (*Acarus siro*, *Lepidoglyphus destructor*, *Tyrophagus putrescentiae* and *Dermatophagoides pteronyssinus*).[6] They found that 14 of 69 patients allergic to dust mites, had detectable levels of IgE antibodies to *Anisakis* simplex.[6] Moneo *et al*. have shown the allergenic cross-reactivity between several allergens in *Anisakis* simplex and four dust mite species.[7]

Moreover, Bernardini *et al*. showed that cross-reactive components between *D. pteronyssinus* and *Anisakis* simplex include some proteins with a molecular weight (mw) ranging approximately from 35 to 50 kDa and with a mw > than 100 kDa.[8] In addition, it is shown that tropomyosin can have a very important role in this cross-reactions.[9]

In the light of all this, we attributed the gastrointestinal symptoms complained by our patient during the immunotherapy to *Anisakis* simplex allergy. In any case, it was considered opportune to interrupt the SLIT to obtain the complete remission of symptoms. In the light of these findings, it is possible to hypothesize that immunotherapy for dust mite could pose an unintentional challenge in patients with gastroallergic anisakiasis due to cross-reaction with *Anisakis* simplex antigens. Even if further observations of adverse reactions to sublingual immunotherapy with dust mite in patients sensitized to *Anisakis* are needed, our data suggest that oral treatment should be discouraged in these patients.

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References

1 Fraj Lazaro J, Remacha Tomey B, Colas Sanz C, Ortega Fernandez de Retana A, Lezaun Alfonso A. *Anisakis*, anisakiasis and IgE-mediated immunity to *Anisakis* simplex. *J Investig Allergol Clin Immunol* 1998; **8**: 61–63.

2 Daschner A, Alonso-Gomez A, Cabanas R, Suarez-de-Parga JM, Lopez-Serrano MC. Gastroallergic anisakiasis: borderline between food allergy and parasitic disease – clinical and allergologic evaluation of 20 patients with confirmed acute parasitism by *Anisakis* simplex. *J Allergy Clin Immunol* 2000; **105**: 176–181.

3 Daschner A, Pascual CY. *Anisakis* simplex: sensitization and clinical allergy. *Curr Opin Allergy Clin Immunol* 2005; **5**: 281–285.

4 Paganelli R, Ansotegui IJ, Sastre J *et al*. Specific IgE antibodies in the diagnosis of atopic disease. Clinical evaluation of a new *in vitro* test system, UniCAP, in six European allergy clinics. *Allergy* 1998; **53**: 763.

5 Kennedy MW. Immune response to *Anisakis* simplex and other ascarid nematodes. *Allergy* 2000; **55** Suppl 59: 7–13.

6 Johansson E, Aponno M, Lundberg M, van Hage-Hamsten M. Allergenic cross-reactivity between the nematode *Anisakis* simplex and the dust mites *Acarus siro*, *Lepidoglyphus destructor*, *Tyrophagus putrescentiae*, and *Dermatophagoides pteronyssinus*. *Allergy* 2001; **56**: 660–666.

7 Moneo I, Caballero ML, Gomez F, Ortega E, Alonso MJ. Isolation and characterization of a major allergen from the fish parasite *Anisakis* simplex. *J Allergy Clin Immunol* 2000; **106**: 177–182.

8 Bernardini R, Mistrello G, Novembre E *et al*. Cross-reactivity between IgE-binding proteins from *Anisakis* simplex and *Dermatophagoides pteronyssinus*. *Int J Immunopathol Pharmacol* 2005; **18**: 671–675.

9 Asturias JA, Eraso E, Moneo I, Martínez A. Is tropomyosin an allergen in *Anisakis*? *Allergy* 2000; **55**: 898–899.

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