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Clinical Record

Leishmaniasis presenting to the otolaryngologist: a rare but important cause of persistent hoarseness

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Abstract

Objective: We report a rare UK case of laryngeal leishmaniasis, mimicking laryngeal candidiasis, associated with long term steroid inhaler use.

Methods: Case report and review of the world literature concerning leishmaniasis.

Results: Laryngeal leishmaniasis is a protozoal infection which is rare in the Western world. It is becoming more common, however, with increased foreign travel. The disease can be difficult to diagnose histologically, and diagnosis is often delayed because of its rarity. It can mimic malignant laryngeal disease, and patients may therefore be subjected to significant and inappropriate treatment interventions.

Conclusions: A diagnosis of leishmaniasis should be considered if initial treatment for persistent hoarseness is ineffective, particularly in a patient who is at low risk of malignancy.

Key words: Leishmaniasis; Larynx; Steroid Inhalers; Asthma; Candidiasis; Cancer; Antimicrobial Therapy

Introduction

Leishmaniasis is infection with protozoa of the genus Leishmania.[1] More than 20 species exist, and are divided into New World and Old World types. Transmission to mammals is by the bite of the female sand fly (from the genus Phlebotomus in the Old World and Lutzomyia in the New World). Infection in wild animals is rarely pathogenic, except in dogs. In humans, the parasite disseminates via the reticulo-endothelial system.[2] Humans are considered incidental hosts. Less commonly, the disease is acquired by blood transfusion, or by vertical or sexual transmission.[3,4]

In humans, there are three possible clinical syndromes of leishmaniasis; cutaneous, muco-cutaneous and visceral. An individual species is able to induce more than one clinical picture.[5]

We report a rare case of laryngeal leishmaniasis in an asthmatic patient, which was misdiagnosed for one year before the correct diagnosis was made.

Case report

A 62-year-old, Caucasian, non-smoking man with well controlled asthma presented to the otolaryngology department with a one-year history of persistent hoarseness. He had no other upper aerodigestive or systemic symptoms, or other relevant past medical history. He used regular steroid inhalers and had required intermittent oral steroids for at least 30 years to control his asthma. He had spent a holiday in southern Spain three years prior to presentation, but had not left the UK since. There was no history suggestive of immune compromise. He had initially been diagnosed by his general practitioner with probable laryngeal candidiasis, due to regular steroid inhaler use, and had been treated with an oral antifungal and advised to reduce steroid inhaler use. A failure of symptoms to improve had necessitated a second opinion from a local respiratory physician, who had agreed with the general practitioner's diagnosis and had continued antifungal therapy. The patient had remained dysphonic, however, but had been otherwise well. He had eventually returned to his general practitioner and an otolaryngology opinion had been sought.

Physical examination demonstrated a generally red, oedematous larynx, and nothing else remarkable.

Laboratory investigations revealed a normal full blood count, liver function test, urea, electrolytes and inflammatory markers. A direct laryngoscopy and biopsy under general anaesthesia were arranged, mainly to exclude superficial infiltrating malignancy.

At operation, the supraglottic larynx appeared generally hyperaemic and swollen. No focal lesions were identified. The remainder of the upper aerodigestive tract appeared normal.

Histological examination revealed the presence of florid, active, chronic inflammation associated with mucosal ulceration. Lymphoid cells predominated, accompanied by notable numbers of epithelioid cells and giant cell granulomata (Figure 1). A number of small, circular organisms were present which did not stain with the usual fungal markers. A report of possible leishmaniasis was made.

The diagnosis was confirmed by the London School of Hygiene and Tropical Medicine, where polymerase chain reaction testing was performed on the laryngeal biopsy.

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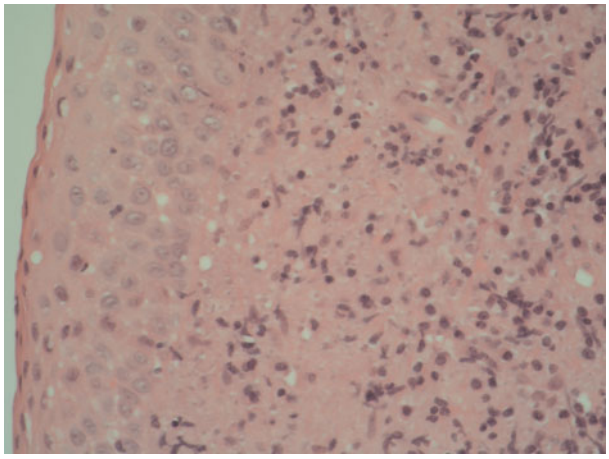

FIG. 1
Photomicrograph of laryngeal leishmaniasis (haematoxylin and eosin, ×400).

The complex deoxyribonucleic acid of *Leishmania donovani* was detected.

The mainstay of leishmaniasis treatment is the pentavalent antimony compound sodium stibogluconate (Pentostam; GlaxoSmithKline UK, Middlesex, UK).[2] Our patient was treated with a standard regime of 20 mg/kg daily intravenously for 21 days, which improved his hoarseness. No adverse effects were encountered during treatment. Follow-up laryngoscopy revealed a healthy larynx with no evidence of inflammation.

Discussion

Leishmaniasis is rare in the Western world, with only one documented case in the UK, in 1991.[1,4] However, with an increase in foreign travel and the existence of more immunocompromised individuals than ever before, its incidence is rising. The main reservoir for the parasite is dogs, although rodents and wild foxes are also carriers.[3] The clinical effects of the disease are dependent on the particular species of parasite present, its local habitat and the immunity of the human host.[1,2,6] The parasite can incubate for weeks to months before clinical signs become evident. In our case, the patient's last foreign travel had been three years previously, so it is unclear how he acquired the disease.

Clinically, leishmaniasis is divided into visceral, cutaneous and mucosal syndromes.[2] Visceral disease causes systemic upset presenting with fever, malaise, weight loss, and eventually hepatosplenomegaly and pancytopenia. Cutaneous disease presents with chronic skin ulcers, whilst mucosal disease causes infiltration of the mucosa of the nose, mouth, nasopharynx and upper respiratory tract.[2,4] In more than 90 per cent of cases, the nasal cavity is affected. Laryngeal leishmaniasis is less common, with only 10 cases described in the past 30 years.[3]

There is debate as to whether mucosal involvement develops secondary to spread from visceral or cutaneous infection or whether it is due to primary inoculation of the mucosa.[5] Mucosal disease is more common in Central and South America, where the most implicated species is *L braziliens*. In some reported cases, mucosal involvement occurred months or even years after initial skin disease.[4,5] Our patient had no cutaneous or visceral disease, present or past. Most documented cases of isolated mucosal leishmaniasis have been due to *L donovani*, as in our patient's case. This species, however, has not previously been implicated in laryngeal disease in the UK. Given our patient's clinical picture, it is also unclear as to how primary inoculation could have occurred. The patient's Spanish holiday three years prior is an unlikely possibility because of the very long incubation that would have been required, and because *L donovani* is very rare in that region. The usual clinical presentation of laryngeal disease, unsurprisingly, is dysphonia and occasionally dysphagia.[2,5]

Specific histological staining of a tissue biopsy is required for diagnosis, and it is often difficult to type the specific *Leishmania* species.[4,5] Typing is often postulated on geographical grounds. In our case, the species was positively identified.

Our patient was, not unreasonably, misdiagnosed for one year and treated empirically for suspected laryngeal candidiasis. Most other documented cases have been similar, although many affected patients have been immunocompromised secondary to various diseases (such as human immunodeficiency virus infection) or prolonged use of steroids.[3–6] Our patient, like many with asthma, was a long term user of inhaled steroids and also required occasional courses of oral steroids for exacerbations. In addition to the anxiety misdiagnosis can cause patients, it can also expose them to treatment interventions with significant side effects. Indeed, there have been several cases in which patients have received radiotherapy following a misdiagnosis of cancer.[4]

- **Leishmaniasis is rare in the Western world. However, with an increase in foreign travel and in the numbers of immunocompromised individuals, its incidence is rising**
- **This paper discusses a patient with laryngeal leishmaniasis. Because of the condition's rarity, diagnosis was delayed**
- **Treatment with appropriate antimicrobial chemotherapy is curative**

This case highlights several important issues. Firstly, leishmaniasis is undoubtedly a rare cause of persistent hoarseness in the UK. However, our literature review shows that its incidence is rising throughout the world. Secondly, many patients presenting to otolaryngology clinics with hoarseness are taking regular, inhaled steroids. This is a diagnosis to consider should symptoms not resolve, particularly if fungal infection has been suspected but treatment has had no effect. Thirdly, the condition can macroscopically mimic superficial spreading cancer of the larynx. Unless leishmaniasis is suspected, patients risk being misdiagnosed and treated for malignant disease, which can have significant long term effects. Antimicrobial therapy, by comparison, has minimal side effects, and any that do occur are usually temporary and resolve when treatment is stopped.

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