Rare disease

A report on a rare case of *Klebsiella ozaenae* causing atrophic rhinitis in the UKYi Jie Lee,¹ Luke Stephen Prockter Moore,² John Almeyda¹¹ENT Department, West Middlesex University Hospital, Middlesex, UK;²Microbiology Department, West Middlesex University Hospital, Middlesex, UK**Correspondence to** Mr Yi Jie Lee, yjlee@doctors.org.uk**Summary**

Ozena is a chronic disease of the nasal cavity characterised by atrophy of the mucosa and bone caused by *Klebsiella ozaenae*. It is endemic to subtropical and temperate regions affecting the lower socio-economic group, usually the poor who live in unhygienic conditions. It is a rare disease in the UK. There is usually a delay in diagnosis due to unfamiliarity of the disease. A 25-year-old Nigerian migrant presented with nasal obstruction with purulent nasal discharge. Isolation of the bacterium was found from cultures of nasal discharge, crusting and tissue biopsies. She was treated successfully with ciprofloxacin. It is important to consider this rare condition in cases of nasal obstruction even in non-endemic areas especially with the advances of modern travel.

BACKGROUND

Klebsiella ozaenae is associated with chronic inflammation of the upper airways called ozena.¹ The incidence of the disease in developed countries has become uncommon due to the improvements in sanitation and hygiene. It is a rare progressing chronic rhinitis, forming thick dried scabs and distinct foul odours due to atrophic changes in the nasal mucosa with resorption of underlying bone. They may also present with headaches and facial pains similar to that of chronic sinusitis.^{2 3}

Clinical diagnosis is made by the presence of characteristic changes in the nasal passage – enlargement of nasal space, mucosal and bony atrophy with thick crusts; or with microbiological isolation of the indicated species.

This condition is endemic to subtropical and temperate climates like South Asia, Africa, Eastern Europe and Mediterranean region.² The pathogenesis of the disease remains poorly understood but links to nutrition, endocrine, developmental, infectious and hereditary factors have been suggested.²

We report a case of ozena causing nasal obstruction, foul smelling purulent discharge and nasal crusting by which the diagnosis was based on culture & PCR findings.

CASE PRESENTATION

A 25-year-old woman of Nigerian descent was referred by her general practitioner with a long history of chronic nasal discharge and nasal obstruction which became worse since her arrival to the UK 3 years ago. The discharge was described as foul smelling with little association with itching. There was also association with episodic frontal headaches.

She was an otherwise fit and well woman with no history of atopy. She denies smoking, alcohol or illicit drug usage.

Endoscopic examination of the nasal passages revealed the presence of mucopurulent discharge (figure 1), dried scabs (figure 2) between the inferior turbinates and septum bilaterally with the middle meatus appearing clear.

The septum was not deviated nor were there any nasal masses.

INVESTIGATIONS

The cultures taken from the pus swabs, tissue biopsies and crusting isolated *K ozaenae*, showing susceptibility to ciprofloxacin.

CT of the sinuses revealed mucosal thickening in the ethmoid, sphenoid and maxillary sinuses. The frontal sinuses were clear. The maxillary antrum were obstructed by soft tissue bilaterally. There was bilateral atrophy of the inferior turbinates.

Haematological and biochemical investigations including HIV were unremarkable.

TREATMENT

Treatment was initiated with regular saline nasal douching, oral ciprofloxacin for 2 weeks and topical ofloxacin nasal spray for 5 days.

OUTCOME AND FOLLOW-UP

Regular 3 monthly follow-ups for decrusting purposes have shown significant improvement of her symptoms.

DISCUSSION

Ozena or atrophic rhinitis is a chronic inflammatory process characterised by atrophy of nasal mucosa and resorption of underlying bone. The term 'ozena' originated from the foul smelling nasal discharge often associated with the condition. It can be classified into two main types: primary and secondary.^{1 2} Primary atrophic rhinitis is a slow onset progressive disease in a previously healthy nose. The secondary form is usually associated with a history of previous nasal conditions including trauma, rhinosinusitis, surgery, radiation exposure and cocaine use.³ It accounts for most cases encountered currently. The prevalence of the condition in the developed world is rare but is likely

Figure 1 Nasal discharge within left nasal passage.

Figure 2 Dried scabs within right nasal passage between inferior turbinate and septum with enlargement of the nasal space.

to be more common in poorer countries. Approximately 0.3–7.8% of ENT diseases in endemic regions are reported to be associated with ozena.⁴

The diagnosis of ozena can be made from the clinical history and examination, aided with biopsies and imaging techniques. The triad of crusting, fetor and atrophy is characteristic.^{2–5} Our patient presented with primary ozena with nasal obstruction with foul smelling discharge

and nasal crusts. Nasal endoscopy revealed the presence of nasal crusts which are yellow-green around the turbinate with associated nasal discharge. Her CT imaging revealed atrophy of the inferior turbinates with resorption of the bony turbinate. The diagnosis was confirmed with isolation of *K ozaenae* on microbiology specimens.

CT is often forms part of the diagnostic process in these cases.⁶ Radiographic changes include: 1) Mucosal

thickening of the paranasal sinuses; 2) Loss of definition of the ostiomeatal complex due to resorption of the ethmoid bulla and uncinate process; 3) Hypoplasia of the maxillary sinuses; 4) Enlargement of the nasal cavities with erosion and bowing of the lateral nasal wall; 5) Bony resorption and mucosal atrophy of the inferior and middle turbinates.⁶

Medical management through the use of regular nasal douching and antibiotic therapy with ciprofloxacin has been shown to be clinically effective.^{1–7} The aim is to improve the nasal obstruction from the crusting and preventing secondary infections and foul odour.^{1–3} Surgery can be considered if medical therapy is unsuccessful by closure of the nasal passage.⁸

Learning points

- ▶ *K ozaenae* should be considered in cases of chronic nasal obstruction with nasal discharge even in non-endemic areas.
- ▶ In developed countries, this is now rare due to the improvements in personal hygiene standards.
- ▶ It is important to keep this entity in mind in patients with atrophic rhinitis due the ease in overseas travel and immigration.

Competing interests None.

Patient consent Obtained.

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