IN BRIEF

- Cutaneous facial sinus tracts due to dental infections are well recorded.
- Poorly controlled diabetes mellitus renders patients more susceptible to infection.
- Cutaneous facial sinus tracts may possibly arise in poorly controlled diabetics due to denture-related trauma and infections.

Cutaneous facial sinus tract of denture-related aetiology? A case report

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A case is reported of a chronic facial sinus on the mandible. It is postulated that this was due to chronic mucosal trauma associated with a poorly adapted denture in a patient rendered immunosuppressed by poorly controlled type II diabetes. Previous treatment with antibiotics alone was unsuccessful. Healing was only achieved when antibiotics were combined with removal of the denture and improved diabetic control.

Cases of odontogenic infection draining onto the skin can present to the dental practitioner, often following a long history of antibiotic administration and multiple referrals. Indeed, some patients may have undergone excision of the skin lesion on one or more occasions before the dental cause is correctly identified. We report here a cutaneous sinus tract possibly due to long-standing denture-related trauma in a diabetic patient.

CASE REPORT

A 63-year-old man was referred to the unit of oral medicine from the dermatology department with a year long history of a lesion on the right side of his chin (Fig. 1). He had initially attended his general medical practitioner who had treated the lesion with a course of antibiotics. This initially resolved the lesion, however it rapidly recurred. He was subsequently referred to the dermatology department

Fig. 1 Cutaneous sinus on right side of mandible

where a facial sinus of dental origin was thought to be the most likely diagnosis. The patient complained of bleeding when the lesion was traumatised during shaving and occasional discomfort and discharge from the lesion.

The medical history revealed that the patient had been a type II (non insulin dependant) diabetic for the previous 5 years, controlled using the oral hypo-

glycaemic drugs glimepiride (Amaryl®) 1mg once daily and metformin 500 mg three times daily. He was otherwise well and on no other medication. He was a long-term smoker and consumed alcohol only occasionally.

He had been edentulous for 18 years and his dentures were of a similar age. He wore them constantly day and night and had not seen a dental practitioner since the dentures were constructed.

On examination, extra-orally the patient showed a crusting lesion on the right lower border of the mandible the centre of which was puckered. The appearance was characteristic of a chronic facial sinus. The patient wore poorly adapted, unstable acrylic dentures. The denture bearing area showed evidence of denture induced hyperplasia and widespread erythema. In the lower right buccal sulcus there was a small ulcer with surrounding erythema. The ulcer was related to the buccal extension of the denture in this area and appeared to be traumatic in origin (Fig. 2).

Radiographic examination of this area, including a dental panoramic tomograph and intra-oral views, showed neither retained roots nor evidence of periosteal new bone deposition.

The provisional diagnosis was of a chronic facial sinus possibly caused by infection gaining entry into the tissues by persistent denture trauma in a patient ren-

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Fig. 2 Denture induced mucosal trauma in lower right buccal sulcus

dered susceptible to infection by poorly controlled diabetes.

Antimicrobial therapy was prescribed: amoxicillin 500 mg three times daily and metronidazole 200 mg three times daily for 2 weeks and the patient advised to leave his lower denture out. No pus was available from the sinus for a microbiological swab. The results of a full blood count were normal but the glycosylated haemoglobin was elevated at 9.4% (normal range 4.5%–6.5%) indicating poor diabetic control. His general medical practitioner was subsequently informed.

Over the next 4 weeks the lesions showed steady improvement. The extra oral lesion was reduced to a 2 mm healing punctum and the intra-oral, denture-related trauma resolved completely.

At review 8 months after the original presentation there was no recurrence. The patient had increased his glimepiride to 6 mg a day; this had led to a reduction of the glycosylated haemoglobin to 7.5%. Examination revealed a small scar at the sinus site. He had not worn his lower denture since his initial visit and the oral mucosa appeared healthy. The patient was referred for construction of new full acrylic dentures and review arranged for one year.

DISCUSSION

There are several factors in this case that indicate that the facial sinus may have been caused by infection following denture trauma in a poorly controlled diabetic. These include the recurrence of the lesion following a single course of antibiotics from the general medical practitioner compared with the complete healing seen with denture removal, improved diabetic control and antibiotics; the wearing of ill fitting dentures day and night causing mucosal trauma which offers a portal for infection into sub-epithelial tissues; and the coincident anatomical location of the intra- and extra-oral lesions.

A review of the literature however

shows no cases of this type. There are many reports of sinuses relating to dental sepsis and peri-apical infection.^{1–9} Many of these are reported in the plastic surgery and dermatology literature and raise the need for vigilance across all specialities. Diagnostic difficulty is a feature of many of these cases and it is recognised that confusion can occur between facial sinuses of dental origin and pyogenic granulomas, foreign body reaction, deep seated mycoses, osteomyelitis or even squamous cell carcinomas.² There are reports of patients undergoing multiple excisions and biopsies, lengthy antibiotic courses, radiation therapy or electrodesiccation before the dental cause is identified.³ In all reported cases removal of the causative tooth or root canal therapy is the recommended treatment. A series of 37 cases found that 85% of causative teeth were in the mandible with 81% draining to the chin or submental region.⁴

The prevalence of diabetes mellitus is increasing worldwide. Type II diabetes is its most common form and its occurrence is largely determined by the risk factors of age, obesity, family history and ethnicity. It especially affects the rich in poor countries and the poor in rich countries, affecting some 10% of those with a western lifestyle who survive into later life.¹⁰ Patients with diabetes have infections more frequently than those without diabetes, and the course

of such infections is more complicated.¹¹ Possible reasons for this increased infection rate are still being elucidated but include defects in the immune system, an increased adherence of microorganisms to diabetic cells and the presence of micro- and macroangiopathy. Disturbances of the immune system in both the humoral and cellular systems have been identified both *in vitro* and *in vivo*. These disturbances have recently been reviewed by Geerlings and Hopelman¹² and are summarised in Table 1. Improvement in glycaemic control in diabetic patients leads to an improvement in the cellular immune response and hence a lower rate of infection.

The case reported here raises the possibility of chronic facial sinuses of dental origin arising in patients with increased susceptibility to infection from unexpected dental sources. If this is a true relationship then more cases are likely to be reported as the number of immunosuppressed individuals in the community increases with time.

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Table 1 Summary of the different immune dysfunctions found in diabetic patients (based on Geerlings and Hopelman)¹²

	Humoral		Cellular	
Innate	Complement	↓	Polymorphnuclear cell	↓ =
			Monocytes/macrophages	↓
Adaptive	Immunoglobulins	=	T lymphocytes	↓
Microbe adherence		↑		

↓ means decreased function, = means unchanged function and ↑ means increased function in diabetic patients compared with non-diabetic controls