

## **Extra-Oral Sinuses Of Dental Origin**

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### **Summary**

*This article concerns four patients with cutaneous sinus tracts of dental origin who were referred to Oral and Maxillofacial Surgical Unit of Oral and Dental Hospital and ENT. A ward of Khyber Teaching Hospital, Peshawar. These cases demonstrate that once the correct diagnosis has been made, treatment by appropriate surgical procedures, directed towards the source of infection leads to prompt resolution of the sinus tract. This is an uncommon disease but one for which a high degree of alertness must be maintained when one sees a nodulocystic or ulcerative lesion of the face.*

### **Introduction**

Chronic dental infection results in alveolar abscesses which may spread to a number of primary and even secondary facial spaces around the jaw and face. A sinus is often produced which discharges either into the oral cavity or to the cutaneous surface of the facio-cervical areas<sup>1</sup>.

Extra-oral sinuses are not a rare complication of dental infection<sup>2</sup>. Many medical practitioners are often unaware of the fact that dental infections may present as a discharging sinus in the face. These lesions are frequently

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misdiagnosed and much time and effort is wasted while condition is managed with only chemotherapy, directed to the external end of the infection. The dental surgeon is often involved late in the course of the disease after unnecessary suffering, expense and useless empirical therapy. We are reporting on four patients who had sinuses on different areas of the face, all of which were the outcome of dental disease.

### **Case Reports**

#### **Case - 1**

A 16 years old girl was referred from a peripheral hospital to Oral and Maxillofacial Surgical Unit of Oral and Dental Hospital with the chief complaint of pus coming out from a lump in the centre of her chin (Fig. 1). The patient stated that the lesion had been present for over a year. She had received treatment in the form of injections from various medical practitioners and clinics, and had also tried a number of traditional home remedies with equally disappointing results.

On examination, the skin around the sinus was adherent to the deeper structures. The patient had good oral hygiene and full compliment of teeth being present. A clinical diagnosis of extra-oral sinus of dental origin was made. Lower Panorex x-ray revealed bone destruction in both lower central incisor areas (Fig. 2). Surgery consisted of apicoectomies and retrograde root fillings. The intra-oral wound closed primarily. Black silk sutures were removed after ten days. The patient never complained of discharge again, the lump shrunk to considerable size within 2 months but never disappeared. This was excised after three months (Fig. 3) as the patient was conscious about disfigurement.

#### **Cases - 2**

A 35 years old man was referred from Khyber Teaching Hospital to Oral and Maxillofacial Surgical Unit with the chief complaint of pus discharge in front of right ear region for more than three years (Fig. 4). He had been treated with sinus curettage, antibiotics in various form but the discharge never stopped.



Fig. 1



Fig. 2



Fig. 3



Fig. 4



Fig. 5



Fig. 7



Fig. 9



Fig. 10

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On clinical examination, there was no extra-oral swelling. An extra-oral sinus in the right parotid region was present with slightly erythematous skin surrounding it. Intra-orally full dentition were present. Oral hygiene was fairly good. Lower right wisdom tooth was impacted and there was a dirty white bone visible distal to the wisdom tooth (Fig. 5). A provisional diagnosis of osteomyelitis was made and the patient was sent for OPG which showed a large sequestrum extending from lower right second molar to the ramus, reaching almost the base of the right coronoid process (Fig. 6). Swab was taken for culture sensitivity, but no growth was obtained after 24 hours.

Surgery consisted of removal of wisdom tooth along with sequestrectomy under local anaesthesia (2% xylocain with adrenaline 1.800000) by an intra-oral approach. The wound was packed with 2 inch ribbon gauze soaked in Acriflavin lotion. Dressing was replaced every third day after irrigating the area with saline. Post-operative phase was uneventful. The sinus became absolutely dry after 8 days (Fig. 7), and complete healing of the wound along with bone formation took about 7 months (Fig. 8).

### Case - 3

A young boy age 16 years was referred to ENT 'A' ward of Khyber Teaching Hospital with the chief complaint of pus discharge below the left eye for the last one and a half year. The discharging sinus was curetted twice in a district hospital along with antibiotic medication but the result was disappointing.

Clinical examination revealed a pin head sinus in the left infra-orbital region with slightly raised erythematous skin margin (Fig. 9). Intra-orally all teeth except the wisdom teeth and upper left canine were present. The patient did not give any history of their removal. Upper Panorax and left lateral views showed impacted upper left canine eroding the lateral wall of the nose (Fig. 10,11).

Surgery consisted of left lateral Rhinotomy incision extending slightly toward the medial canthus excluding the sinus. Skin alongwith periosteum was retracted. Bleeding points secured and the cusp of the canine was identified which had resorbed the bone around the tip of the cusp. The rest

of the crown was exposed by drilling the bone with round fissure bur. The tooth was removed with anterior forcep (Fig. 12). The area was curetted and the granulation tissue removed. During curettage it was found that root of the maxillary sinus was involved with about 5 mm. perforation in it. The maxillary sinus itself was not curetted and was left alone.

The sutures were removed after 7 days. The lateral Rhinotomy scar was hardly visible and discharging sinus was completely dry (Fig. 13).

#### Case - 4

A young girl age 16 years was referred to Oral and Maxillofacial Surgical Unit of Dental Hospital with complaint of pus/blood discharge from the left side of the face for more than two years. The discharging areas had been curetted few times by general practitioners. A local Hakim also treated her with topical application of some form of oil but none of the measures were helping.

On clinical examination extra-orally, there were three discharging sinuses in the left submandibular region and a fourth sinus in the left ramus region with erythematous skin all around the sinuses (Fig. 14). Intra-orally  $\overline{8,7,6,5,4,3}$  were absent.  $\overline{c}$  was overretained. A dirty white bone was visible in the region of  $\overline{3,4,5}$ . A diagnosis of osteomyelitis was made. Lower Panorex x-ray showed a large sequestrum containing  $\overline{3,4,6}$ .  $\overline{5}$  was absent while  $\overline{8}$  was impacted. All the teeth on the lower right side were present but their eruption being retarded.  $\overline{8}$  was also impacted (Fig. 15).

Surgery consisted of extraction of lower left lateral incisor and sequestrectomy along with removal of buried teeth in it i.e.  $\overline{3,4,6}$  under general anaesthesia. The lower border of the mandible though very thin was spared keeping in view the young age of the patient with great osteogenic potential. The cavity thus created was packed with 2 inches ribbon gauze



Fig. 11



Fig. 13



Fig. 14



Fig. 16



Fig. 6

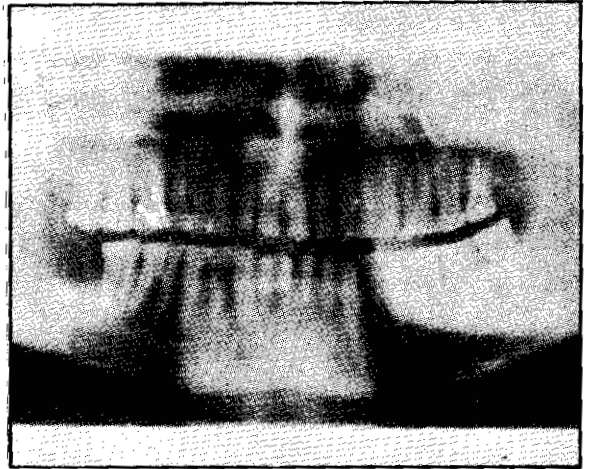


Fig. 8



Fig. 15



Fig. 17



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soaked in Acriflavin lotion. The patient still visits the Dental Hospital for dressing changed on alternate days. The sinuses are dry now (Fig. 16) and the cavity is filling nicely with the bone (Fig. 17).

### Discussion

Swelling or sinuses of dental origin are frequently found in specific areas of the face. The most common sites for a cutaneous sinus of dental origin as reported in the literature are the chin and the jaw<sup>3</sup>. Our two cases also involved the chin and the lower jaw but the other two reported cases had an unusual terminating site of a dental sinus and were, therefore, considered worth mentioning in literature.

The pathogenesis of dental sinuses is well documented<sup>4,5</sup>. Any restored, traumatized or decay tooth is suspect. Even a root remnant following extraction or an odontogenic cyst may be the source of infection<sup>6</sup>. The abscess occurs in the root system of the tooth after compromise of the pulp vascularity and expands circumferentially to involve the alveolar bone. The pus emerges through the point of least resistance and travels along the fascial planes until exiting on the skin surface<sup>7</sup>. While the majority of these lesions drain intra-orally, there are several factors that will cause distal draining sites:

1. The relationship of the site of original infection to the attachment of the muscles of the mouth determines whether the tract will drain intra- or extra-orally.

2. If the tooth has a long root located below the line of muscle attachment or

3. If the tooth is deeply embedded in the bone so that the infection site lies outside of the muscle attachments, the draining site will be extra-oral.

This latter point explains why children are susceptible to this lesion. Their permanent teeth are only partially erupted and, therefore, lie well below the line of muscle attachment.

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Regarding the clinical picture, usually the history is not very helpful. The patient may have been completely unaware of any dental problem and only 50% can recall having had toothache in the past<sup>8</sup>.

Clinical examination of the lesion, arising from a dental abscess, reveals a fixed, non-tender erythematous nodule, upto 15mm in diameter palpable just below the surface of the skin with surrounding induration. The lesion usually has a draining pore in the centre but may simply be a mass. A few enlarged regional nodes may occasionally be detected.

Once a dental abscess is suspected, a careful intra-oral examination should be carried out to identify the offending tooth. The edentulous jaw should not escape meticulous examination as cyst, remaining tooth fragments and impacted teeth are potential source of dental abscesses.

Radiological examination will show the abscess cavity as a circular ragged area of bone resorption. If the x-rays are unhelpful, persistence in obtaining additional views and angles may ultimately prove rewarding in difficult cases.

Electrical stimulation test may give a negative response when the tooth has died.

The treatment of these lesions must initially be directed to the management of the underlying infection rather than towards the extra-oral lesion; as demonstrated in the case reports, apicoectomy plus retrograde root filling, extraction and sequestrectomy result in the arrest of infection and resolution of the sinus tract<sup>9</sup>. Penicillin is usually prescribed to help control the infection process. In majority of the cases, the cosmetic result will be quite satisfactory. However, as the sinus resorbs, the fibrous tract may result in umbilication of the skin. In such cases excision and plastic repair may be indicated after the acute infection has resolved<sup>7</sup>.

### **Conclusion**

The presence of a sinus tract in the facial region should alert a medical practitioner to the necessity of routine dental examination. Early

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referral to an Oral surgeon can prevent unnecessary suffering, useless empirical therapy and extensive tissue destruction.

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