

Median Mental Sinus in Twins

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Abstract: Sinus on the chin can be the result of a chronic apical abscess due to pulp necrosis of a mandibular anterior tooth. The tooth is usually asymptomatic, and a dental cause is therefore not apparent to the patient or the unsuspecting clinician. Not infrequently, the patient may seek treatment from a dermatologist or general surgeon instead of a dentist. Excision and repair of the fistula may be carried out with subsequent breakdown because the dental pathology is not removed. This paper reports the presence of median mental sinus of dental origin in twins. One case healed following root canal therapy while the other required both root canal therapy and surgery to eliminate the infection.

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Clinical Significance: An odontogenic cause should always be considered in the differential diagnosis of a cervicofacial sinus. Both vitality tests and radiographs will help to resolve the problem in cases where clinically the teeth are sound.

the submental region and chin.⁷ Other sites of extra-oral drainage are the cheek, canine space, nasolabial fold, nose, upper lip and even the inner canthus of the eye.^{4,6,7}

The following is a report of median mental sinus occurring in twins.

CASE REPORT

Twin 17-year-old sisters of Indian ethnic origin were referred to the Department of Oral and Maxillofacial Surgery of the University of Malaya by a general surgeon. Both had the same complaint of a 'boil' on the chin, which discharged pus intermittently.

In twin A, the 'boil' had been present since the age of 14; in twin B it occurred two years later, at age 16. Both girls had undergone surgical excision and closure of the chin lesions twice before, with subsequent breakdown and failure to heal. They were otherwise symptom free. There was no significant medical history.

Clinical examination revealed two sisters of similar appearance, although their genetic identity was not established. Both had a fistula on the midpoint of the



Figure 1. Dental condition and mental sinus at presentation (twin A).

A cervicofacial sinus is a blind-ended tract discharging on the skin of the face and the neck.¹ Odontogenic pathology is one of the well-recognized causes of cervicofacial sinus.² Among the common sites for cervicofacial sinuses is the mid-point of the chin, i.e. submental, usually termed 'median mental sinus'.³ Its odontogenic aetiology is usually an apical pathology of a mandibular anterior tooth.

Cervicofacial sinus may be a diagnostic dilemma as the skin lesions can clinically simulate skin infection (carbuncle), sebaceous cysts, basal cell

epithelioma, basal cell carcinoma or even squamous cell carcinoma.^{2,4} However, the sinus tract will continue to exude purulent discharge as long as the primary odontogenic aetiology is not correctly diagnosed and treated: one case has been reported that was correctly diagnosed only after 32 years.⁵

Patients may be unaware of any associated dental problem, which delays correct diagnosis of the primary dental origin.^{6,7} Only 50% of patients with cervicofacial odontogenic sinus tracts have a history of toothache.⁷ The involved area is usually asymptomatic and the patient generally healthy.⁴

In a study carried out on 678 teeth requiring endodontic treatment and having periapical pathology, 86 (12.7%) teeth were associated with sinus tracts, of which only seven drained extra-orally.⁸ In cases of cervicofacial sinuses of odontogenic origin, 80% involved mandibular teeth; half of these were anterior teeth, producing sinus tracts in

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Figure 2. Dental condition and mental sinus at presentation (twin B).

chin. There were no other significant extra-oral findings. There was also no known history of trauma to the teeth. Their dental experiences were different: twin A had had previous dental treatment while twin B was fearful of dental treatment and was an irregular attender.

Dental Findings: Twin A
(Figure 1)

The maxillary right central and left lateral incisors were restored with composite while the mandibular right first and left second molars were restored with amalgam. Oral hygiene was good. The mandibular left lateral incisor was slightly discoloured, non-tender to percussion and firm and there was no evidence of restoration, caries, deep grooves, severe attrition or abrasion, fracture or cracks in this tooth. It did not respond to electric pulp testing.

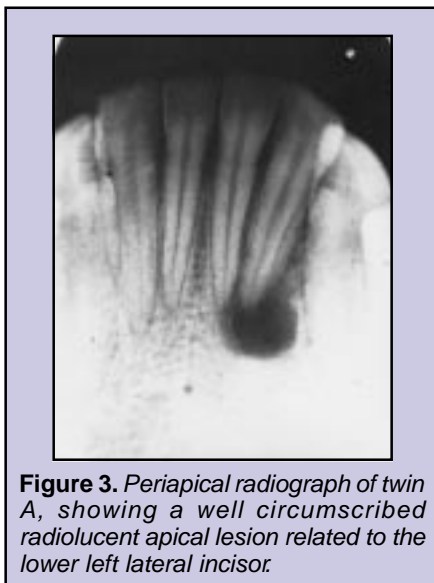


Figure 3. Periapical radiograph of twin A, showing a well circumscribed radiolucent apical lesion related to the lower left lateral incisor.

Dental Findings: Twin B
(Figure 2)

The maxillary right second molar, mandibular right second premolar and left second molar were grossly carious, as were the maxillary left central and lateral incisors and second molar. The mandibular left central incisor was discoloured, non-tender and firm and there was no evidence of restoration, caries, deep grooves, severe attrition or abrasion, fracture or cracks in this tooth. It did not respond to electric pulp testing.

Diagnosis

Periapical radiographs of the lower anterior teeth revealed a well circumscribed radiolucent lesion related to the apex of the lower left lateral incisor in twin A (Figure 3); in twin B, there was a more diffuse radiolucency related to the apex of the lower left central incisor (Figure 4). A diagnosis of chronic apical abscess draining extra-orally through the median mental sinus was made. In view of the fact that in both cases the involved teeth were free from caries, periodontal disease and congenital anomalies, it was postulated that the aetiology was trauma to the teeth, which had gone unreported.

Treatment

In both cases, mechanical preparation of the root canal of the affected teeth, followed by orthograde root filling, was carried out. The root canal was obturated by lateral condensation of gutta percha points using AH26 (De Trey, Zurich, Switzerland) as sealant. In twin B, healing of the sinus was noted one week after completion of root canal filling, and subsequent healing was uneventful (Figure 5). In twin A, however, there was no improvement after one month. Apical curettage, apicectomy and retrograde amalgam filling were carried out under local anaesthesia and uneventful healing followed (Figure 6). In both patients there was a residual slightly depressed scar (Figure 7). Surgery to remove the scar could be performed if required by the patients.

DISCUSSION

The cases presented illustrate the necessity for co-operative diagnostic referrals between medical practitioners,

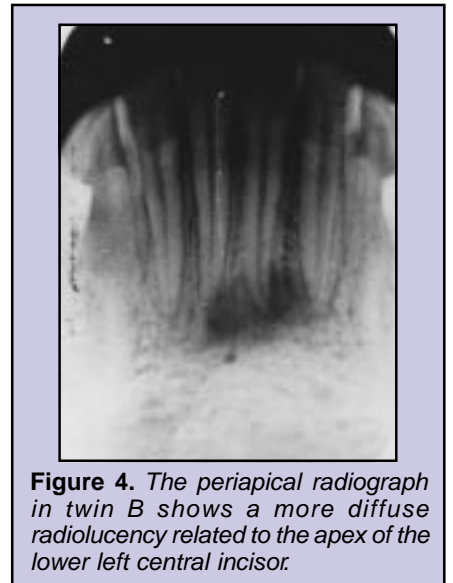


Figure 4. The periapical radiograph in twin B shows a more diffuse radiolucency related to the apex of the lower left central incisor.

general surgeons and dentists. The presence of cervicofacial sinus should always bring to mind the possibility of underlying dental pathology. Investigations should include a full medical and dental history, a physical and dental examination and appropriate radiographs of the teeth.

Differential diagnoses² of cervicofacial sinus should include:

- traumatic lesions;
- fungal and bacterial infections;
- neoplasms;



Figure 5. Appearance of twin B, 19 months after obturation of the root canal.



Figure 6. In twin A bone healing occurred 18 months after apicectomy and retrograde amalgam filling.

- presence of a foreign body;
- localized skin infection (carbuncle or infected epidermoid cyst);
- pyogenic granuloma;
- osteomyelitis;
- actinomycosis;
- gumma of tertiary syphilis.

Other uncommon differential diagnoses are developmental defects of thyroglossal duct origin or branchial cleft, salivary gland and duct fistula, dacryocystitis and suppurative lymphadenitis.

Cutaneous manifestations of a periradicular inflammation are now uncommon because more teeth are treated endodontically before the infection spreads. If periradicular infection is present, it may result in the development of an apical granuloma. If there is proliferation of resting epithelial cells in this granuloma, then the so-called radicular cyst will develop. A rare form of periradicular inflammation is Partsch's chronic granulomatous inflammation, in which the granulation tissue spreads through the bone and causes a cutaneous odontogenic sinus.⁹ Teeth with periapical lesions larger than 5 mm in diameter are more frequently associated with sinus tracts than those with smaller lesions.⁸

The teeth that caused the median mental sinus in the twins appeared clinically intact, masking the correct

diagnosis. If the sinus tract is patent, as shown in these cases, a lacrimal probe or gutta-percha cone may be used to trace its track from the cutaneous orifice to the point of origin, which is usually a non-vital tooth.¹ A radiograph is then taken with the probe in place.

Root canal therapy is the treatment of choice if the tooth is restorable:^{4,7} extraction is indicated for teeth beyond restoration. Once the primary odontogenic pathology has been eliminated, the sinus tract and cutaneous lesion will usually resolve without the need for further surgical intervention or antibiotic therapy.^{4,6} In most cases, healing of the sinus tract occurs by secondary intention. If healing of the sinus tract results in cutaneous dimpling, cosmetic scar revision can be performed.^{4,6}

Sometimes mechanical preparation of the root canal and orthograde root filling fail to eliminate a periapical infection completely, resulting in a persistent sinus tract. In these cases, surgical intervention to eliminate the residual infection is indicated. The tissue removed should be sent for histopathological examination to exclude the possibility of neoplasm or resistant infection, especially actinomycosis.¹⁰ In one of the patients reported here, the sinus persisted after root canal therapy but healed spontaneously following surgery to eliminate residual infection.

The genetic contribution to occlusion, tooth dimensions, dental morphology, dental anomalies and dental caries has been shown in studies in twins¹¹⁻¹³ but reports of the presence of the same dental pathology in twins are rare. A case of idiopathic root resorption of the permanent dentition has been reported in monozygotic twins.¹² Though not originating from the same tooth, the cases presented here showed an interestingly similar pattern of spread of infection. Perhaps, because of the similarity of the bone profile, tooth morphology and alignment and muscle attachment, the infection followed a similar weak plane to create median mental sinus in both patients.

CONCLUSION

The importance of considering an odontogenic source is emphasized in



Figure 7. Facial appearance of both twins, 19 months after root canal treatment.

cases of chronic facial granulomatous or ulcerative lesions. Suspicion should be aroused when presented with such cases. The sinus should be probed and the oral cavity examined carefully. Radiographs should be taken with the probe in the sinus tract to confirm the origin of the infection.

References

1. Mitchell DA. A bizarre facial sinus. *Dent Update* 1994; **21**: 303-304.
2. Malik SA, Bailey BMW. Cervicofacial sinuses. *Br J Oral Maxillofac Surg* 1984; **221**: 178-188.
3. Bailey H. Median mental sinus. *Br Dent J* 1956; **66**: 289-292.
4. Cohen PR, Eliezri YD. Cutaneous odontogenic sinus simulating a basal cell carcinoma: case report and literature review. *Plast Reconstr Surg* 1990; **86**: 123-127.
5. Bernick SM, Jensen JR. Chronic draining extraoral fistula of 32 years' duration. *J Oral Maxillofac Surg* 1969; **27**: 790-794.
6. Cioffi GA, Terezhalmay GT, Parlette HL. Cutaneous draining sinus tract: an odontogenic etiology. *J Acad Dermatol* 1986; **14**: 94-100.
7. Hodges TP, Cohen DA, Deck D. Odontogenic sinus tracts. *Am Fam Pract* 1989; **40**: 113-116.
8. Huang TJ, Roan RT, Lin HT. Sinus tracts of dental origin. A clinical study. Part I. *Kao Hsiung I Hsueh Ko Hsueh Tsa Chih* 1990; **6**: 653-660.
9. Sack U, Reichert T, Diwo T. Skin symptoms of chronic inflammation of a tooth root apex. *Hautarzt* 1992; **43**: 230-232.
10. Spear KL, Sheridan PJ, Perry HO. Sinus tracts to the chin and jaw of dental origin. *J Am Acad Dermatol* 1983; **8**: 486-492.
11. Boraas JC, Messer LB, Till MJ. A genetic contribution to dental caries, occlusion and morphology as demonstrated by twins reared apart. *J Dent Res* 1988; **67**: 1150-1155.
12. Saravia ME, Meyer ML. Multiple idiopathic root resorption in monozygotic twins: case report. *Pediatr Dent* 1989; **11**: 76-78.
13. Rubin MM, Nevins A, Berg M, Borden B. A comparison of identical twins in relation to three dental anomalies: Multiple supernumerary teeth, juvenile periodontitis, and zero caries incidence. *J Oral Surg* 1981; **52**: 391-394.