A case of bilateral supplemental maxillary central incisors

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Summary. A case of bilateral supplemental maxillary central incisors is presented. Treatment comprised of extraction of one supplemental and two lateral incisors, preservation of one supplemental incisor, finishing with a ‘Cyclops’ arrangement of the teeth. The handling of supernumerary teeth in general is discussed.

Introduction
The prevalence of hyperodontia given in various reports ranges from 0·25% to 2·7% [1–8].

The commonest site for hyperodontia is the premaxilla, with Bodin et al. quoting a prevalence of 1·57% [4], while Hurlen and Humerfelt quote 1·43% [5].

Males are affected more frequently than females in a ratio of 2 : 1 [3,9,10]. Kurosu et al. found the ratio to be 3 : 1 [2] and Davis gives a figure of 6·5 : 1 [8]. However, Backman and Wahlin found a 3 : 1 ratio in favour of females [6].

Multiple impacted supernumerary teeth are a feature of certain syndromes, such as Gardner’s syndrome, cleidocranial dysostosis and Nance–Horan syndrome. Supernumerary teeth are also a common feature in cleft cases. The severity of the cleft is usually inversely proportional to the number and the normalcy of shape of supernumerary teeth. In more severe clefts, the rudiments of odontogenic lateral incisor tissue on either side of the unfused processes may not survive, leading to complete loss of the incisor.

Characteristics of supernumerary teeth
Supernumerary teeth are classified according to their shape and size. If they are of abnormal shape or size they may be termed ‘supernumerary teeth’. The latter are subclassified as conical, tuberculate or molariform. Those of orthodox shape and size, resembling a member of the normal dentition are termed ‘supplemental teeth’.

In general, maxillary supernumerary teeth are of abnormal shape. Bodin et al. [10] found 90% of maxillary supernumerary teeth to be deformed. The commonest type of maxillary supplemental tooth is the supplemental lateral incisor [12]. Bilateral cases are rare, making up 8% of the total. In a search of the literature, only four reports of bilateral maxillary central incisor duplication were found [13–16].

The present report records a further case of bilateral supplemental central incisors.

Case report
A 13-year-old boy attended the clinic complaining of unsightly front teeth. He presented with a Class
II/i incisor relation on a Class I base with an average FMA. The lower arch was mildly crowded and the upper arch severely crowded with four central incisors. The central incisors were all similar in size, however, the distal teeth were slightly larger, more rounded and more shovel-shaped, with an incisal notch. The lateral incisors were diminutive and displaced palatal to the distal central incisors. The canines were vertical. The overjet was 12 mm. The overbite was increased and complete to tooth and palatal mucosa. The centrelines were coincident in the midline and the buccal segment occlusion was Class II. There was a mesiobuccal rotation on 24 (Figs 1–4).

Ideally the patient required fixed appliance therapy with extraction of the supplemental incisors, however, there was no-one on the island available to carry out this type of treatment at the time.

Study models were taken and a consensus opinion obtained from three orthodontic consultants at Guy’s Hospital, London as to the feasibility of ‘drifodontics’.

It was decided to accept the lower arch and extract 12, 21#, 22 in order to improve the appearance as much as possible. A reasonable result was obtained, with considerable spontaneous alignment of the remaining incisors over the following 2 years. Mild residual rotations persisted, as did a 1-mm space at the extraction site of the upper left distal central incisor (Figs 5–8).
A few years later, the patient presented again enquiring whether any further improvement was possible. An upper fixed appliance was used to align the remaining three central incisors in a Cyclops arrangement (Fig. 9).

The result was to the patient’s satisfaction and he has continued to attend the general dental side of the practice, albeit on a casual basis (Fig. 10).

**Discussion**

Supplemental central incisors are rare, bilateral cases even rarer, only four cases having been reported in the literature to date [13–16]. There is a possibility of large supplemental lateral incisors being misreported as central incisors, however, this
report leaves no doubt as to which tooth has been duplicated.

It is interesting to note that the lateral incisors were diminutive. Johnson [12] reports that in cases of supplemental laterals, the distal lateral was more oval shaped than the mesial, possibly a form of ‘caninization’. The distal central incisors were much rounder then the mesial, and also exhibited an incisal notch.

The aetiology is very likely to be dichotomy of the tooth germ. Melnik [17] reports a case of gemination of one central and a supplemental central on the other side. It is possible that gemination in these cases was complete on both sides.

Bohn [18] postulated that supplemental lateral incisors are a microform of cleft. This theory is supported by Johnson [12].

Trotman and McNamara [16] reported a case of bilateral central incisors in a cleft case, however there was no mention of orofacial clefting in the cases reported by Rock [14] or Steelman [15]. There was no family history of clefting in this case. It is unlikely that orofacial clefting plays a significant role in the aetiology of supplemental central incisors.

In line with the trend found in most studies of hyperdontia, the subject was male.

The majority of supplemental teeth remain unerupted [5,10].

Unerupted supplemental teeth have been associated with several pathological conditions, such as widened follicular space, dentigerous cyst formation, dental pulp necrosis, pulp canal obliteration, root resorption, and ankylosis. Disturbance of eruption, diastema formation and rotations of permanent teeth are common complications. Hurlen and Humerfelt [5] found that nearly 60% of subjects examined had radiographic or clinical signs of interference with the normal dentition or of associated complications.

There is no formal treatment protocol for this condition [19], however, most authorities recommend extraction. Indeed this is the approach presented in undergraduate and postgraduate textbooks [20,21].

Bodin et al. [10] point to the high frequency of widened follicles with potential for cystic change and Hurlen and Humerfelt [5] recommend radiographic follow-up of supernumeraries left in situ. This is often the treatment of choice for those supernumeraries which do not exhibit any pathology and whose extraction may pose a surgical risk.

Most erupted supernumerary teeth are of abnormal size and shape and so are extracted on aesthetic grounds. Holtzman [22], however, presents a case where an erupted conical supernumerary tooth is preserved.

Supplemental teeth may be preserved if the situation warrants. Melnik [17] reported the movement of a supplemental incisor across the midline to replace an extracted megadont tooth.

In this particular case, a supplemental tooth was also preserved, though circumstances dictated that the treatment carried out was not ideal. Had the supplemental centrals been extracted and fixed appliances used to align the teeth in the first instance, a far better result would have been obtained.

Résumé. Un cas bilatéral d’incisives centrales maxillaires supplémentaires est présenté. Le traitement a consisté en l’extraction de l’une des deux incisives supplémentaires et de deux incisives latérales, la préservation de l’une des incisives supplémentaires, une finition avec un arrangement de type « cyclope » des dents. La prise en charge en général des incisives supplémentaires est discutée.
Zusammenfassung. Ein Fall von beidseitig überzähligen mittleren Oberkiefer-Schneidezähnen wird vorgestellt.


Resumen. Se presenta un caso de incisivos centrales superiores supernumerarios bilaterales. El tratamiento comprendía la exodoncia de un supernumerario y dos incisivos laterales, la preservación de un incisivo supernumerario, finalizando con un arreglo ‘cíclope’ de los dientes. Se discute, en general, el tratamiento de los dientes supernumerarios.

References