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LOBODONTIA
Literature review and case report

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Abstract

A case of lobodontia is described which involves anomalies of shape, size, number, eruption, and positions of the teeth. The hereditary line is autosomal dominant, not X-linked. The esthetic problems and secondary diseases were treated.

Key words: lobodontia, dental anomalies, case report.

Introduction

Lobodontia is a set of simultaneous anomalies in shape, size, number, eruption, position, and structure of the teeth. This anomaly occurs without other anomalies or phenomena of any syndrome (ROBBINS and KEENE, 1964; SHUFF, 1972).

Literature review

The anomaly was first described in detail by ROBBINS and KEENE (1964). However, there is a description of a case together with some drawings from the end of the 19th century (ROBBINS, 1890, cit. in COLYER, 1910). That report presents an early review of lobodontia in the upper and lower dental arches in a patient and his relatives. "In two sisters of this patient a similar condition existed, though not so well marked, and some cousins were also stated to have shown the same peculiarities."

According to BROOK and WINDER (1979), lobodontia was defined by KEENE and DAHLBERG in 1973 as a multiple tooth anomaly resembling the dentition of carnivores (lobos - wolf). This terminology was used by DIXON and STEWART in 1976, too. However, as concerns the interpretation of this technical term, NATHANAIL (1979) and

WALTERS (1980) point out that the Greek "lobos" means "lobe" and "odontia" means "dentition", while the Latin "lobulus" is "lobe" and "lupus" is a "wolf". On this basis:

1. The anomaly may be called "lupusodontia" (NATHANAIL, 1979), or "lupusdentia" (WALTERS, 1980) in Latin, or " lykodontia" in Greek.

2. However, the term "lobodontia" meaning lobed (or lobular) dentition is more correct, in spite of the fact that it concerns only one member of this set of anomalies, namely the tooth form.

In the permanent dentition, the anomaly may affect practically all teeth. The literature data (ROBBINS and KEENE, 1964; SHUFF, 1972, CASAMASSIMO et al, 1978; BROOK and WINDER, 1979) indicate that its characteristic features in the different tooth groups are as follows:

Incisors: marked cingulum formation, invagination, shovel-shaped, accentuated marginal folds, and lobulation.

Canines: extremely pointed and well-developed central lobe, with underdeveloped marginal lobes.

Premolars: well-developed, pointed buccal cusps, and underdeveloped lingual cusps. Teeth with a single root, with possible invagination.

Molars: multitubercular crown form, without the typical groove pattern. Supernumerary, pointed cusps, sometimes occlusally. Single rooted teeth, with pyramidal or taurodont roots.

Beside anomalies concerning the tooth form, hypodontia, delayed tooth eruption, and diminished tooth size are characteristic of this malformation. Positional and structural anomalies may appear, too. In the described cases, no other malformations of the face or of the body were present, from either a physical or a mental aspect.

Lobodontia, as a set of developmental anomalies, may cause secondary pathological lesions through its formal and structural anomalies. BROOK and WINDER (1979) reported on dental invagination causing periodontal pathosis.

The etiology of the anomaly is unknown. It is a hereditary anomaly, the inheritance being autosomally dominant (BROOK and WINDER, 1979). Though not an X-linked anomaly, some authors (CASAMASSIMO et al., 1978) postulate a recessivity linked to the X chromosome, while others (BROOK and WINDER, 1979) consider it to be multifactorially determined, with a polygen component.

KEENE and DAHLBERG (1973) give its prevalence as less than $1:10^6$. The reported cases were Europid persons.

Case reports on lobodontia do not deal with the therapy of the anomaly, but merely with the therapy of the secondary diseases, e.g. extraction of displaced premolars (ROBBINS and KEENE, 1964), or the endodontic therapy of periodontitis caused by invagination (CASAMASSIMO et al., 1978; BROOK and WINDER, 1979).

Case report

Table I. Dental status of patient with lobodontia.

impacted	.	.	.	.	.	germ aplasi	.	.	.	.	.	impacted	.	.	impacted
8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
erupting	.	extracted	impacted	.	.	.	germ aplasi ?	germ aplasi ?	.	.	.	.	extracted	.	erupting

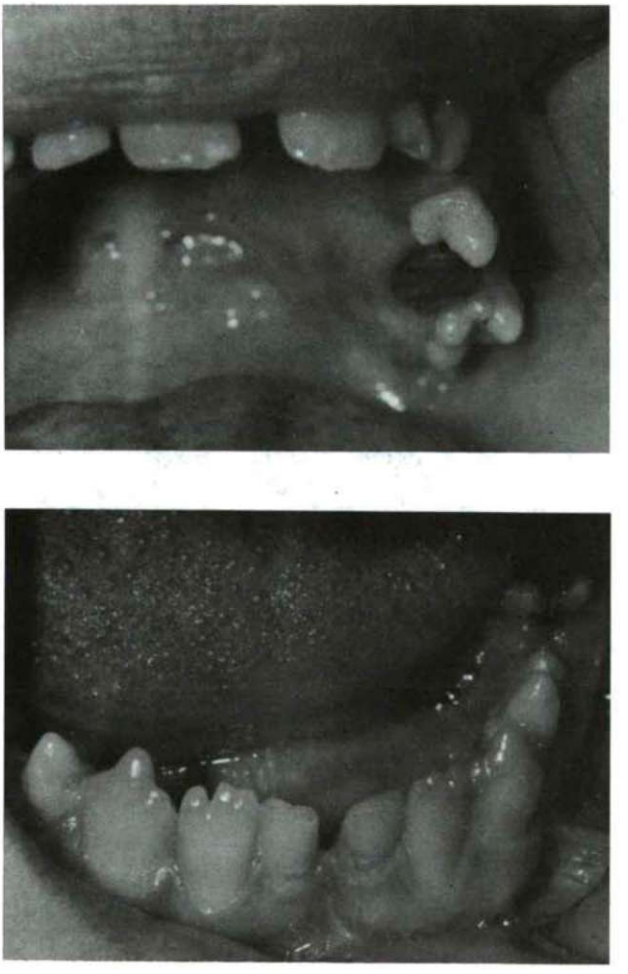

Fig. 1 A, Clinical appearance of the upper dental arch. B, Clinical appearance of the lower dental arch of the lobodontia patient

L.G. a 16-year-old boy, exhibits an unusual form of the teeth (Fig. 1 A,B). The dental status is given in Table 1. The following characteristics of the teeth have been observed:

Incisors: The upper central incisors are slightly barrel-shaped. The incisal edges and the labial surfaces are three-lobed. Throughout the palatinal surface, two parallel grooves run from the incisal edge to the moderately developed cingulum. A moderate tuberculum dentis (talon cusp) can be seen (Fig. 2). Between the two central incisors there is a 2.7 mm diastema (trema). There is aplasia of both upper permanent lateral incisors, with persistence of the deciduous teeth. These reveal a slight shovel-shape.

The two lower central incisors are peg-shaped, with a slightly barrel-shaped form. The incisal edges are worn, and the axis of the crown is slanted distally relative to the root axis (Fig. 1B). Their color resembles that of the permanent teeth. As concerns the extent of the abrasion, however, the persistence of the deciduous teeth and the aplasia of the permanent ones is possible.

The lower lateral incisors are strongly three-lobulated. The distal notch of the incisal edge is so deep that the teeth have a cuspidated appearance. The fissure is marked on the labial and lingual surfaces, too.

Canines: The eruption of the upper cuspids has not been completed yet (Fig. 2). The crowns of these teeth are three-lobulated. The middle lobe is strong and protruding, while the lateral ones are rather low.

The lower cuspids are well-developed, with a less accentuated lobulation than that of the upper ones (Fig. 1B). They are strongly shovel-shaped; the left one is rotated about its long axis.

Premolars: The first upper premolars resemble the canines, or the lower first premolars, having a strong, protruding buccal cusp with a rounded tip. The palatal cusp presents only in the form of a tuberculum dentis. The mesial and distal enamel rims embrace the buccal cusp and form a strong cingulum or palatal talon-cusp (Fig. 1 A). Both upper first premolars present invagination, protruding into the inside of the teeth deeper than the enamel-cemental junction, where the invaginations are dilated. Both teeth are single-rooted, the right one is rotated about its long axis.

Of the upper second premolars, the right one is not completely aligned, while the left one is still in the maxillary bone (retention). The palatal cusp of the right second premolar presents in the form of a medium-sized tuberculum dentis, being divided from the well-developed buccal cusp by a deep groove. There is invagination inside the tooth, in similar proportions as described above. There is bone rarefaction around its apex (Fig. 3). The tooth is rotated about its long axis.

The buccal cusp of the lower first premolars is strong and pointed. There is no invagination inside these teeth.

The lower right second premolar is still in the bone (retention). The left one resembles the first premolar and is erupted. It is also rotated, and presents no invagination.

Fig. 2. Diagnostic models of the upper incisors and cuspids

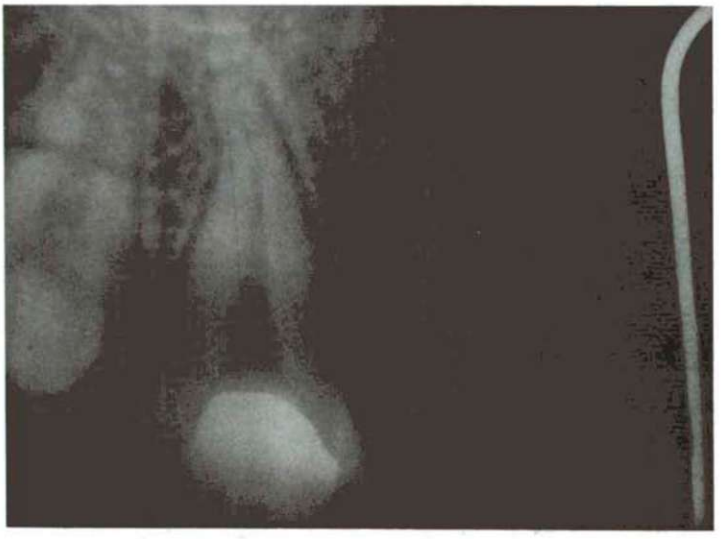

Fig. 3. Intraoral radiograph showing periapical pathosis caused by invagination of the upper right second premolar.

Molars: None of the molars present the usual number of cusps and groove pattern. They have a typical form of 5-7 cusps aligned around a central fovea, without any occlusal cusps, just as in the report by CASAMASSIMO et al. (1978). The first lower molars were extracted a long time ago. The wisdom teeth are still in the bone. The crowns of teeth 16, 26, 37 and 47 are badly destroyed, or filled. All of these teeth, with the exception of the mesotaurodontic lower right second molar (Fig. 4.), are single-rooted, with a pyramidal form.

Fig. 4. Intraoral radiograph showing mesotaurodontic lower right second molar.

The teeth display a reduction in size, similar to the case reported by BROOK and WINDER (1979). Tooth sizes are presented in Table 2.

Table 2. Mesiodistal crown dimensions of patient.

-	8.2	8.8	5.0	5.4	7.0	-	7.5	7.9	-	7.0	5.5	-	-	8.3	-
8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
-	-	-	-	5.5	6.9	5.0	4.5	4.5	5.0	6.9	5.5	5.8	-	9.6	-

The cheek-bones are well developed, and the TMJ exhibits no functional disturbances. Apart from the tooth anomalies described, no other anomaly or pathological condition is discernible. The patient has a good physique, in accordance with his age. He is a mentally well-developed young man. However, his unusual denture is causing him psychological problems, making him shy and passive.

Information from the father and grandmother of the patient revealed that lobodontia has been present in several generations of the family. The hereditary line of the anomaly is presented in Fig. 5. This indicates that the condition is inherited as an autosomal dominant trait, and is not an X-linked anomaly.

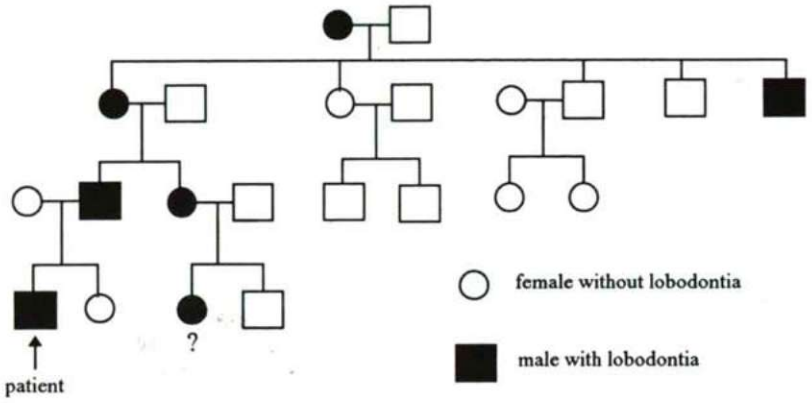

Fig. 5. Pedigree representing an autosomal dominant, and not an X-linked hereditary line.

Fig. 6. The patient with "normalized" tooth form.

We have treated the apical bone rarefaction endodontically, and covered the molar teeth with crowns. The esthetically disadvantageous form anomalies of the front teeth, the cuspidated appearance of the incisal edges, and the large diastema between the upper front teeth have been corrected with composite resin material (Fig. 6).

Discussion

This case is similar to the previously described lobodontia cases. An abnormal tooth form, aplasia of the tooth germ and delayed eruption have been found, similarly as in the literature. Invagination has been found in teeth 14, 15 and 24, whereas the incisors and lower premolars exhibited no such anomaly. In the case of the molars, taurodontia and a pyramidal root form presented concomitantly. The hereditary line has been presented in the form of a table, according to which the lobodontia is inherited dominantly, and is not X-linked.

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