Gingival Cyst and Midpalatal Raphé Cyst of Infants
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Abstract:
Cysts of the jaws and maxillofacial areas are not new lesions. There is proof of cystic lesions in the jaws of humans and other animals in the distant past. Lesions of the jaws construed as cysts have been established in mummified cases from the predynastic period (c.4500 bc) and from the 5th dynasty (c.2800 bc) in Egypt. Initial portrayals of cystic lesions of the jaws were inscribed by Aulus Cornelius Celsus (early part of 1st century), Pierre Fauchard (1690–1762) and John Hunter (1729–1793), amongst others. Dental lamina cysts, also recognized as gingival cysts of the newborn, are benign oral mucosal lesions of transient nature. They are frequently mistaken as natal teeth if existing in the lower anterior region. As the lesions are self-limiting and instinctively shed in a few weeks or months after birth, no treatment is essential. The gingival and the midpalatal raphé cysts of newborns are appropriately conversed together for the reason that of clinical features that they share, though the first is of odontogenic origin and the latter of progressive origin. In view of their dissimilar histogeneses, they are divided in the classification.

Keywords — Gingival Cyst, Midpalatal Raphé Cyst, Infants diseases, Cystic lesions.

INTRODUCTION
The lesions are small and white or cream coloured (Fig below). The frequency of gingival cysts is high in newborn babies but they are infrequently seen after 3months of age. It is obvious that most of them undergo involution and vanish, or rupture through the surface epithelium and exfoliate, as very few are submitted for pathological investigation. Monteleone and McLellan (1964) and Fromm (1967) have carried out wide clinical studies of newborn infants to look for nodules in the mouth, often denoted to as Bohn’s nodules or Epstein’s pearls. There is some confusion about the two eponyms and their relation to gingival cysts in neonates. It would seem that Epstein’s pearls are those that happen along the midpalatine raphé and are not of odontogenic origin, whereas Bohn’s nodules are found on the buccal or lingual facets of the dental ridges. Fromm (1967) pointed out furthermore that Bohn was writing about remnants of mucous glands and had named them ‘mucous gland cysts’. Gingival cysts, according to Fromm, were found only on the crests of the maxillary and mandibular dental ridges. For all this, the three terms are often used synonymously. Their nonexistence from the soft palate was clarified by Burdi (1968) whose embryological studies designated that consolidation of the soft palate and uvula took place not by fusion but by subepithelial mesenchymal merging of bilateral primordia without direct apposition and breakdown of epithelium. Ikemura et al. (1983) described a frequency of 89% in 541 Japanese neonates surveyed in the first 8days after birth. Another high frequency was found in a Taiwanese study in which the mouths of 420 neonates were observed within 3days of birth. Oral cysts, palatal or gingival, were found in 94% of the newborns (Liu and Huang, 2004). There was no link between the frequency of the cysts and gender, body weight or gestation age. In a analysis article proposed for physicians, Dilley et al. (1991) pointed out that congenital lesions such as palatal and alveolar cysts happened in almost 50% of newborns. Common as they are in infants, gingival cysts are extremely rare over 3months of age. Though, Saunders (1972) has reported a case in a 3month old child and some arise in adults while these are of a different nature.

PATHOGENESIS:
There is common agreement that gingival cysts in infants arise from the dental lamina. Stout et al. (1968) studied epithelial remnants in fetal, infant and adult material. In human fetuses aged between 10 and 12 weeks there was sign of small amounts of keratin formation in fragmented portions of dental lamina. By late in the 12th week the dental laminae were fragmented and several fragments displayed keratin cyst formation (Fig. 2 below). They found epithelial remnants or gingival cysts in the maxillae of 109 infants ranging in age from birth to 4 years who were inspected at autopsy. In their adult material, only 1 of 266 subjects had a cyst though epithelial rests were demonstrated in 90. The epithelial remnants of the dental lamina, the so called glands of Serres, have the capacity, from as early a stage in development as 10 weeks in utero, to proliferate, keratinise and form minor cysts. Moskow and Bloom (1983) noted in human fetal material that as tooth development developed, but preceding to separation of the tooth germ from the oral epithelium, a proliferative tendency was frequently noted in the dental lamina with the formation of numerous areas of distinct microcyst formation and keratin production.

Fig 2 Rests of Serres in the developing alveolus of a human fetus.

In the morphodifferentiation (late bell) stage of tooth development, conferring to Moskow and Bloom, disintegration of the dental lamina happened and many islands and strands of odontogenic epithelium are seen in the corium amongst the tooth germ and the oral epithelium, remote from the developing alveolar practice. Those dental lamina remnants, which had by now changed into small cysts, expanded quickly at this stage (15–20 week embryos) and there was thinning of the overlying oral epithelium. Some of the gingival cysts maybe open onto the surface leaving clefts (Fig 3 below); others might be involved by developing teeth. Some degenerate and vanish, the keratin and debris being digested by giant cells. Saunders (1972) stated that when he incised the mucosa over one of these cysts the contents were evicted, suggesting that they could be under pressure. Very few, as previously stated, become clinical problems.

Fig 3: Gingival cysts in an infant

After birth the epithelial inclusions regularly atrophy and become resorbed. Still, some might produce keratin-containing microcysts (Fig. 3), which extend to the surface and rupture during the first few months after birth. Burke et al. (1966) confirmed the existence of frequent palatine raphé cysts but suggested the possibility that they might represent abortive glandular differentiation leading to cyst formation. In a meticulous study on serial sections of 32 human heads, nearly 8–22 weeks of fetal age, Moreillon and Schroeder (1982) presented that keratinising microcysts developing from the dental lamina increase in number from the 12th to the 22nd week, with a maximum of 190 cysts per fetus. Not more than 20 midpalatal raphé cysts were found in any fetus by week 14 and they did not upsurge in frequency with time. These authors observations recommended that as the cysts developed, their epithelium distinguished, fused with the oral epithelium, and their subjects were discharged. It is of importance to note that the ability of the dental lamina to proliferate in the course of development of the gingival cyst of infants must be of limited potential, quite distinct that of the odontogenic keratocyst. The cysts alongside the
midpalatal raphé have a dissimilar origin. They arise from epithelial inclusions at the line of fusion of the palatine shelves and the nasal methods.

![Fig 4 Midpalatal raphé cyst in a human fetus; Van Gieson stain.](image)

(Fig. 4) This is usually completed by the 10th week (Sadler, 1995).

**Pathology:**
The cysts are round or ovoid and might have a smooth or an undulating outline in histological segments. There is a thin lining of stratified squamous epithelium with a parakeratotic surface and keratin fills the cyst cavity, typically in concentric laminations containing flattened cell nuclei. The basal cells are flat, unlike those in the keratocyst. Epithelial-lined clefts could develop amongst the cyst and the surface oral epithelium. As an outcome of pressure from the cyst, the oral epithelium can be atrophic (Fig. 3). Midpalatine raphé cysts have a similar histological appearance (Fig. 4). Garlick et al. (1989) have designated a congenital gingival cyst 1 cm in diameter, with the histological features of a gingival cyst of adults, but this is extremely infrequent.

**Treatment:**
There is no sign for any treatment of gingival cysts or of midpalatal raphé cysts in newborns. Once their contents are banished, they atrophy and disappear. In the current case no treatment was rendered to the child, but the parents were given comfort about the self-limiting nature of the lesion. The child was occasionally observed and is still under observation. At a subsequent visit the cyst disappeared within 2 weeks without any involvement.

These dental lamina cysts, if existing at mandibular anterior ridge of newborn, might on rare instances be incorrectly diagnosed as natal teeth. Hence the clinical diagnosis of these circumstances is important in order to evade needless therapeutic processes and to offer appropriate information to parents about the nature of the lesion.

**CONCLUSION**

Most doctors do not endorse any treatment as the lesions are asymptomatic and vanish suddenly by fusing with the oral epithelium and liquidating its substances into the oral cavity during the neonatal period. The mechanisms behind the vanishing of the cysts in postnatal life have been accredited to a discharge of cystic keratin at the time of fusion of the cyst walls with the oral epithelium. Though, it has been recommended that part of the cystic epithelium might remain inactive in the midpalatal region of the adult gingiva. So thus we conversed about the gingival cysts in an infant and the Midpalatal raphé cyst in a human fetus.

**REFERENCES**


