

Surgical Management of Cystic Lesions of the Upper Jaw

K. R. Iseh

ENT Department, Usmanu Danfodiyo University Teaching Hospital Sokoto Nigeria.

ABSTRACT

Objective: Tumors of the nose and paranasal sinuses are of various aetiology. They originate from different sites and cause facial asymmetry. Cystic lesions are rare but may mimic tumours. This study reports surgical excision of cystic upper jaw lesions.

Materials and methods : A prospective recruitment of all cases of cystic lesions of the upper jaw seen in two tertiary health centres and analysis of surgical management were carried out over a nine and a half year period (Sept1999-feb 2009).

Results:Ten cases of cystic lesions were seen 6 in females and 4 males aged between 13 and 45years.They accounted for 9% of 111cases of tumours of the nose and paranasal sinuses seen during the period. Five cases were naso-alveolar or nasolabial cysts, 3 were dentigerous cysts, while 2 were mucocoeles of the maxillary sinus.These were excised without recurrences after a minimum period of one year follow up for nine cases while one case is still being followed up. Causes and management of cystic swellings of the maxilla are discussed and compared with world literature.

Conclusion: Cystic lesions of the maxilla causing facial asymmetry constituted 9% of cases of tumours of the nose and paranasal sinuses seen in north western Nigeria. Although cystic lesions of the upper jaw are rare, they are amendable to surgical excision if the root or sources are completely extirpated.

Keywords: Nasoalveolar cysts, Dentigerous cyst, Mucocoele Maxilla, Excision.

INTRODUCTION

Cysts of the maxilla and mandible are not uncommon. A cyst is defined as an epithelial lined pathologic cavity that may contain fluid or a semisolid material¹. They may appear as tumors of the nose and paranasal sinuses but usually along the nasolabial region or the nasoalveolar sulcus or from dental roots and sockets¹⁻³.They are classified as (1).Odontogenic from remnants of enamel epithelium,(2)Non-odontogenic cyst from lines of fusion and (3)Pseudocysts which are nonepithelial and lined only by connective tissue¹⁻³.

The most common jaw cysts is the radicular cyst which is odontogenic and inflammatory in nature¹⁻².The odontogenic developmental cysts(eg dentigerous cyst) are the second most common jaw cyst while non-odontogenic(fissural) cysts (eg nasolabial or nasoalveolar cysts) are much less common¹⁻². Each of the types of jaw cyst usually has a specific behaviour pattern ranging from small 5-6mm osteolytic defects to massive involvement of the jaw and contiguous structures².

Dentigerous cysts are epithelial-lined, developmental, odontogenic cysts associated with the crown of an impacted, unerupted, or developing tooth usually slow growing and benign². Nasoalveolar cyst also known as nasolabial cyst are developmental cysts of the nasal alar region²⁻⁸. They grow submucosally in the anterior nasal floor often elevating and medially displacing the inferior turbinate.remaining extraosseous,they expand into and in front of the piriform aperture, downward into the gingivolabial sulcus and laterally into the soft tissue of the face sometimes causing flattening of the nasolabial fold^{2,8}. Because of their position in the facial soft tissues rather than in the alveolar process,the term nasolabial cyst has been preferred^{6,8}.They are usually painless and asymptomatic and they are recognized only when they are acutely inflamed or large enough to cause nasal obstruction or facial asymmetry.⁹ Nasoalveolar cysts are thought to be of embryonic origin arising where nasal epithelium became trapped in the cleft formed by the fusion of the maxillary,lateral and medial nasal processes^{1,9}.

Correspondence : K. R. ISEH

Email :frobih@yahoo.com

Mucoceles are defined as chronic, cystic, benign lesions which may originate from any of the paranasal sinuses lined by respiratory epithelium that are as a result of sinus ostia obstruction leading to enlarged fluid filled sinus which will eventually erode through the bony wall and then protrudes to the surrounding structures¹⁰⁻¹³. Over 80% of mucoceles arise from the frontal and ethmoidal sinuses¹⁴. The frontal sinus however is the most common sinus to be involved followed by the ethmoid, maxillary and sphenoid sinuses¹⁰⁻¹¹. The maxillary antrum is a relatively rare site for mucocele formation accounting for 10 percent or less of mucoceles reported in Europe and the United States¹⁵⁻¹⁶. Cystic swellings are benign lesions but commonly cause cosmetic deformities requiring surgical excision¹⁻¹³. This paper reports such cases and tries to compare with existing literature.



Figure 1: Left Nasolabial Cyst, external appearance

MATERIALS AND METHODS

All cases with cystic lesions of the upper jaw which were seen and managed by the author were prospectively recruited over nine and a half years (September 1999-Feb 2009) from two tertiary health institutions in north western Nigeria namely Usmanu Danfodiyo University Teaching Hospital Sokoto and Federal Medical Centre Birnin Kebbi. All patients were subjected to plain radiological investigations of the nose and paranasal sinuses and in some cases a computerized tomographic scan was ordered. Routine haematological and biochemical investigations were carried out before surgery. Electrocardiograph (ECG) was ordered in patients older than 35 years. Pre operative and post operative clinical photographs were also performed. The excised lesions were subjected to histological diagnosis. The type of lesions and the surgical approaches were studied and post operatively followed up for a minimum period of one year for any evidence of recurrence.

RESULTS

Ten patients (9%) presented with cystic lesion of the upper jaw out of 111 patients seen with tumours of the nose and paranasal sinuses during the period. Six (60%) were females while 4 (40%) were males with a female to male ratio of 1.5:1. The age range was 13-45 years. The female age range was 13-32 years with a mean age of 18.5 years while the male

S/NO	NAME	AGE	SEX	DIAGNOSIS	SITE	CLINICAL FEATURE	SURGICAL APPROACH
1.	SJ	14	F	Dentigerous Cyst	Right	Cystic Mass with tooth Nasolabial Region	Modified Lateral Rhinotomy
2.	MH	13	F	Dentigerous Cyst	Left	Cystic Mass with tooth Nasolabial Region	Sublabial
3.	MZ	32	F	Nasolabial Cyst	Right	Cystic Swelling Nasolabial Region	Modified Lateral Rhinotomy
4.	AM	39	M	Dentigerous Cyst	Left	Cystic Mass Nasolabial Region with Impacted Tooth Left Anterior Maxillary Wall	Modified Lateral Rhinotomy
5.	YA	40	M	Nasolabial Cyst	Left	Cystic Mass Nasolabial Region	Modified Lateral Rhinotomy
6.	SA	45	M	Nasoalveolar Cyst	Right	Cystic Mass Nasoalveolar Region	Modified Lateral Rhinotomy
7.	AA	15	F	Maxillary Antrum Mucocele	Right	Expansile Cystic Mass Rhinotomy	Modified Lateral Rhinotomy
8.	UA	22	F	Nasoalveolar Cyst	Right	Cystic Mass Nasoalveolar Region	Modified Lateral Rhinotomy
9.	AS	26	M	Nasoalveolar Cyst	Right	Cystic Mass Nasoalveolar Region	Sublabial
10.	AL	15	F	Maxillary Antrum Mucocele	Left	Expansile Cystic Lesion	Modified Lateral Rhinotomy

TABLE 1: Clinical Characteristics of the various Cystic lesions of the Upper Jaw



Figure 2: Nasolabial Cyst viewed internally

age range was 26-45years with a mean age of 37.5 years. The various clinical details and surgical approach were outlined in table 1.

These were excised without recurrences after a minimum period of one year follow up for nine cases while one case is still being followed up. Eight patients had a modified lateral rhinotomy approach due to their large size while two had sublabial approach to excise the lesions.(Figures 1-5)



Figure 4: Nasolabial Cyst exposed.



Figure 5: Sublabial approach to Maxillary antrum mucocele showing Sac

DISCUSSION:

Cystic lesions accounted for 9% of 111 cases of tumours of the nose and paranasal sinuses seen in the two tertiary health institutions. However when they do occur, they must be excluded from other cases of

tumours of the nose and paranasal sinuses through thorough clinical examination and



Figure 6: Left antrum after removal of mucocele Sac

they do occur, they must be excluded from other cases of tumours of the nose and paranasal sinuses through thorough clinical examination and radiologic evaluation such as computerized tomographic scan and magnetic resonance imaging where such facilities exist. There was a slight female preponderance in this series even though the number is small.

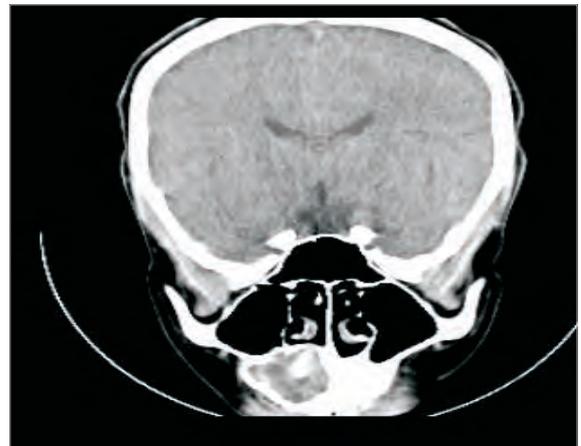


Figure 3: Coronal CT Showing Tooth Highlighted in dentigerous Cyst

Nasoalveolar cyst was first characterized by Zuckerandl in 1892^{6,7}. They are relatively rare lesions of the soft tissue of the nasal alar region usually unilateral, more common in women and are usually present during the fourth and fifth decades of life with a predilection for the black population^{6,9}. In this study

nasoalveolar cysts were found in patients from 3rd-5th decades of life. Two of the three patients with dentigerous cyst and the two patients with maxillary antrum mucocoeles were in the 2nd decade of life and all were females. The maxillary antrum is a relatively rare site for mucocoele formation accounting for 10 percent or less of mucocoeles reported in Europe and the United States, odontogenic cysts or cholesterol granuloma being more common causes of expansion of the antrum¹⁵⁻¹⁶. The two cases of maxillary antrum mucocoeles reported in this paper are the first ever reported cases of maxillary antrum mucocoeles in Nigeria. All articles on mucocoeles from Nigeria have been reported from frontal and ethmoidal sinuses¹⁷⁻¹⁹. Complete excision of cystic lesion is the treatment of choice and not aspiration as may be practiced by some surgeons in some centres. Aspiration will bring about recurrence if the root is not tackled surgically. Aspiration, injection of sclerosing agents, cautery destruction and incision and drainage are various treatment options⁶⁻⁷.

Concerns for cosmesis will highly favour the sublabial approach. If however the cyst is too large to be removed sublabially, an external approach such as modified lateral rhinotomy may be used^{6,20-21}. Eight of the patients in this study had modified lateral rhinotomy approach due to the large size of the cyst while two had sublabial approach. Scar tissue formation may likely follow the external route but is faster.

Through the Sublabial approach excessive bleeding may be encountered and injury to the infraorbital nerve may cause paraesthesia or numbness to the cheek region.

Complete excision guarantees no recurrence in most of the cases but ruptured cysts are unlikely to be excised completely and may most likely reoccur. For very young patients care must be taken while carrying out the sublabial approach to avoid damage to permanent dentition⁴⁻⁶. One must be careful not to create an oroantral or oronasal fistula while carrying out the excision. External sino-nasal approach is fast being overtaken by intranasal approaches due entirely to advancements in endoscopic sino-nasal surgery²²⁻²⁷. The advantages of endoscopic transnasal-sinus surgery over external approach such as lack of external scars, unlikelihood of use of general anaesthesia (some procedures can actually be carried out as an office procedure) makes it a viable choice of management in most developed and some developing nations. Transnasal endoscopic

marsupialization of nasolabial cysts has been reported by Su et al²². Caylakli et al followed up their 14 cases of maxillary sinus mucocoele that were treated endoscopically for between 8 and 48 months without recurrence²⁴.

Cystic lesions have been reported to coexist with malignant lesions and so all efforts should be done to exclude this particularly in the elderly⁶.

In conclusion although cystic lesions were rare among all the cases of tumours of the upper jaw and they were amenable to surgical excision.

REFERENCES

1. McGurk M, Cassoni A, Pitkin L. Cysts and tumours in and around the jaws including sarcoma. In: Leeson M, Browning GG, Burton MJ, Clarke R et al (eds) *Scott-Brown's Otorhinolaryngology, Head and Neck Surgery* 7th edn, Hodder Arnold, London 2008; 1921-1941
2. Smith RA. Jaw Cysts. In: Lalwani AK (ed). *Current Diagnosis and Treatment in Otolaryngology-Head and Neck Surgery*. McGraw-Hill, New York 2004; 387-403
3. Barnes I, Eveson JW, Reichart PA, Sidransky D (eds). *Pathology and genetics of head and neck tumours*. World Health Organisation classification of tumours, IARC Press, Lyon 2005; 9
4. Kreidler GF, Raubenheimer EJ, VanHeerden WF. A retrospective analysis of 367 cystic lesions of the jaws-the Uim experience. *J Craniofac Surg* 1993; 21:339-41
5. Mosqueda-Taylor A, Irigoyen-macho ME, Diaz-Franco MA, and Torres-Tejero MA. Odontogenic cysts. Analysis of 856 cases. *Medicina Oral* 2002; 7:89-96
6. Yanagisawa E, Scher DA. Endoscopic view of a nasoalveolar cyst. *Ear Nose Throat J* 2002; 81:137-8
7. Kuriloff DB. The nasolabial cyst-nasal hamartoma. *Otolaryngol Head Neck Surg* 1987; 96:268-72
8. Fishman RA. Pathologic quiz case 2: Nasolabial (nasoalveolar) cysts. *Arch Otolaryngol* 1983; 109:348-351

9. Karmody CS, Gallagher JC. Nasoalveolar cysts. *Ann Otol Rhinol Laryngol* 1972;81:278-83
10. Lund VJ. Anatomical considerations in the aetiology of fronto-ethmoidal mucocoeles. *Rhinology* 1987; 25:83-88
11. Maran AGD, Lund VJ. *Clinical Rhinology*. Thieme Medical Pub, New York 1990;78-81
12. Lund VJ. The complications of sinusitis. In : Kerr AG, Mackay IS, Bull TR, (eds). *Scott-Brown's Otolaryngology-Rhinology*, 6th ed. Butterworth-Heinemann, Oxford 1997 9-11
13. Serrano E, Klossek JM, Percodani J, Yardeni E, Dufour X. Surgical management of paranasal sinus mucocoeles: A long term study of 60 cases. *Otolaryngology Head Neck Surg* 2004;131-140
14. Alford MA, Nerad JA. Orbital tumours. In: Bailey BJ, Calhoun KH et al (eds). *Head and Neck Surgery-Otolaryngology*, 2nd ed.; Lippincott-Raven Publishers, Philadelphia 1998;1481-1482
15. Lloyd G, Lund VJ, Savy L, Howard D. Radiology in Focus: Optimum imaging for mucocoeles. *JLO* 2000;114:233-236.
16. Marks SC, Latorii JD, Mathog RH. Mucocoeles of maxillary sinus. *Otolaryngol Head Neck Surg* 1997;117:8-21
17. Arole G ,Olaitan D .Paranasal sinus mucocoele: Clinical features and treatment of 13 cases in a maxillofacial unit. *SDJ* 2000;12:167-170
18. Adekeye EO, Ord RA. Giant frontal mucocoele. Report of two cases. *J Max Fac Surg* 1984;12:184-188
19. Ogisi FO, Marchie TT. Huge expansile swelling of forehead: An unusual presentation of frontal mucocoele. *Nig J Clin Pract* 2004;7:43-45
20. Rice DH, Stanley Jr RB. Surgical therapy of tumours of the nasal cavity ,ethmoid ,and maxillary sinus. In: Panje W(ed). *Comprehensive management of Head and neck tumours*. 2nd ed WB Saunders, Philadelphia 1999 ; 558-681
21. Watkinson JC, Gaze M, Wilson JA. *Stell and Maran's Head and Neck Surgery*. 4th ed Butterworth-Heinemann, Oxford 2000;377-394
22. Su CY, Chien CY, Hwang CF. A new transnasal approach to endoscopic marsupialization of the nasolabial cyst . *Laryngoscope* 1999;109: 1116-8
23. Lund VJ. Endoscopic management of paranasal sinus mucocoele. *J Laryngol Otol* 1998;1:36-40
24. Caylakli F ,Yavuz H, Cagici AC, Ozluoglu L. Endoscopic sinus surgery for maxillary sinus mucocoeles. *Head Face Med* 2006;2:29-36
25. Kennedy DW Josephson JS, Zinreich SJ, Maltoux DE, Goldsmith MM. Endoscopic sinus surgery for mucocoeles: a viable alternative. *Laryngoscope*. 1989;99:885-895
26. Conboy PJ, Jones NS. The place of endoscopic sinus surgery in the treatment of paranasal sinus mucocoeles. *Clin Otolaryngol* 2003;23:207-210
27. Har-EL G. Endoscopic management of 108 sinus mucocoeles. *Laryngoscope* 2001;111:2131-2134