

HUGE EXPANSILE SWELLING OF FOREHEAD: AN UNUSUAL PRESENTATION OF FRONTAL MUCOCELE.

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ABSTRACT

An unusual case of a huge and expansile swelling of the forehead with extension to right lateral aspect of the head, was made of mixed cystic and solid consistency and was confirmed, as due to frontal mucocele on CT Scan evaluation. The large mass had caused expansile erosion of the frontal bone with significant pressure effect on the adjacent structures. At operation a large quantity of inspissated sludge and mucoid material was evacuated, revealing extensive erosion of the frontal bone and significant encroachment on the underlying brain tissue. The patient recovered satisfactorily following fronto-ethmoidectomy with drainage of the frontal sinus.

KEYWORD: Expansile, Fronto-Ethmoidectomy, CT Scan.

CASE REPORT

A 71 year old male Nigerian farmer, (of Yoruba Ethnic origin, who resides in Benin) presented with 2 year history of gradually enlarging swelling of the forehead, with intermittent frontal headache.

The swelling was not associated with previous history of trauma, or history suggestive of sinusitis.

The patient also complained of poor vision on the right eye. On clinical examination, there was large frontal and fronto lateral swelling of mixed solid and cystic consistency mainly on the right, with significant extension to the left, measuring 15cm by 6cm. (Fig. 1 & 2).

The right orbit was grossly displaced downwards and laterally, with significant loss of vision. However the mental condition and general state of the patient was normal. Result of general investigations, such as full blood count, ESR, Randon Blood Sugar, ECG, Electrolyte/urea, and Chest xray were within normal limits.

Radiological Evaluation of the Frontal Swelling

1. Plan skull xray-posterior and lateral views showed a huge frontal osteolucent expansile lesion, well corticated, with no evidence of calcification, mainly localised on the right frontal sinus, with significant extension to the left. This was associated with overlying soft tissue swelling. Fig 3.
2. CT SCAN evaluation showed gross expansile frontal sinus lesion eroding the wall of the right frontal sinus. There is extension to lateral aspect of right intra-orbital cavity, and compressing the right eye ball. There is

Anterior protrusion of the mass into subcutaneous space adjacent to right frontal sinus, due to significant loss of the anterior bony wall. There is erosion of the dividing inter frontal septum with extension of the mass into the left frontal sinus, with minimal compression of the left orbital cavity. There is significant compressive erosion, of the anterior aspect of the wall of the base of the skull causing significant pressure displacement of the adjacent brain matter, and contralateral shift of anterior midline brain structure. However the mass is well corticated with sharp transition from the mass and surrounding bone. There is no evidence of intracranial brain tumor, and contrast enhancement of the tissue, showed no significant change. CT number of the mass tissue, m of 15 - 25, suggested a semi-solid mass. The sphenoidal sinus, left maxillary sinus and mastoid air cells are grossly normal, however right maxillary collection, was seen. Fig 4.

The aforementioned features suggested a radiological diagnosis of a frontal mucocele, or organized frontal abscess. A right fronto-ethmoidectomy operation confirmed the nature of the swelling as a frontal mucocele with extension to the left side through breakdown of the dividing septum. The dura over the frontal lobe of the brain was extensively exposed and the brain compressed but not destroyed. Following evacuation of the mucoid contents and excision of diseased mucosa, the frontonasal duct was cleared and reopened, the passage maintained with a portex tube anchored below on the nasal septum and left in place for 4 weeks. The patient recovered uneventfully. He was however lost to followup after the second post operation out patient visit. Attached are pictorial representation Fig. 1, 2, 3 and 4.

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Figure 1: Showing Huge right lateral frontal swelling with left frontal bulge.



Figure 2: Profile view of frontal swelling, out-lining, the left frontal bulge.



Figure 3: Plain x ray showing extensive expansile osteolucent frontal lesion.

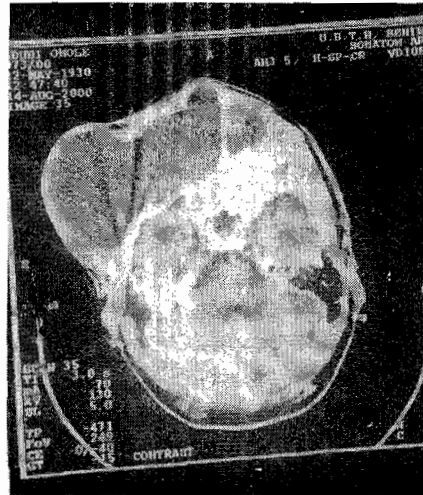


Figure 4: CT scan section showing cross sectional expansile bony, effect on frontal sinus and adjacent structures.

DISCUSSION

Frontal mucocele is a common cause of proptosis, which show significant plain Xray changes⁷. The gross expansile destructive sinus effect, recognised radiologically, may be mistaken for a sinus malignancy, which can cause the same effect. Hence for an undetermined frontal swelling, the present day management, makes it mandatory to establish the diagnosis of frontal mucocele with CT Scan². The value of CT Scan in evaluation of frontal mucocele may be summarized as follows: Coronal CT section of 3 - 5mm interval, will properly define the inferior limit of mucocele and the damage caused⁷. It will also show the extent of expansile destruction of sinus bony wall and gross effect on adjacent structure. CTScan deremines the nature of the mass, whether, it is bony, solid or semisolid.

CT Scan examination should guide the Radiologist to give primary information of sinus malignancy or malignant changes, when a long transition is seen between the surrounding bone. The case report showed classical CT Scan findings in a huge frontal mucocele in a 71 year old male, in whom at this age, clinical presentation and plain radiological appearance may suggest confusing picture of the nature of the frontal swelling. Mucocele is an expanding, destructive lesion that begin with the development of mucous retention cyst in a sinus with block ostium. The blockage may result from an infundibulum that is too long or tortuous, or occluded by intranasal or intranasal inflammatory polyps, or bony tumours^{2,3}.

The lesion tend to accumulate mucus, which when it fills the sinus cavity, increase the pressure on adjacent structures causing destructive thinning and expanding effect. It may break through the wall of the sinus 90% of this bone destruction occurs in the ethmoid and frontal sinus⁴ and rare in maxillary and sphenoidal sinus⁵. This predilection to the ethmoid and frontal sinus, is explained by the relative difficulty a cyst has, in protruding through the longer and narrower nasofrontal duct and infundibulum to nasal cavity, in contrast to the shorter and larger ostia, the avenue of release in the case of the maxillary and sphenoidal sinus. If a mucocele is infected, it is called pyocele or mucopyocele.

In clinical features of mucocele, pain is not an invariable characteristic, as the case of this patient. However, our patient

reported issue of frontal headache and fever before the appearance of frontal swelling. Plain radiographic appearance of frontal mucocele, at earliest sign, of 65% occurrence show clouding that frequently seem to fade as bony change become apparent. The usual scalloped border of sinus is smoothed by erosion of septa, and displacement of intersinus septum. The border of the expanding sinus, may become sclerotic. There may be erosive displacement of adjacent orbital wall which may cause proptosis of eye ball^{2,5} as in the case of this patient. In late stage, the effect of mucocele may be difficult to distinguish from sinus carcinoma, which may destroy bony wall as well. This was the confusion in management of the patient, considering the age of patient at presentation. CT Scan in the present day examination of choice⁶ is to elucidate primary nature of frontal swelling. In this case CT Scan examination elucidated the extent, of destructive effect, outlined the site of lesion and the gross effect on the adjacent structures, CT number determine the nature of the mass, and was confirmed as semi solid material. This is in keeping with mucous content of mucocele. The treatment of mucocele is surgical and majority are satisfactorily treated with fronto-ethmoidectomy operation⁸ through an external approach with excision of diseased mucous and adequate drainage into the middle meatus of the nose.

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