

Rare Case of Frontoethmoidal Mucocele with Orbital Invasion a Case Report



Medical Science

KEYWORDS : fronto ethmoidal, mucocele, endoscopic drainage, lynch incision.

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ABSTRACT

Fronto ethmoidal mucoceles can present with different clinical features, mostly ophthalmic. Though not a neoplasia, they have a tendency to expand by thinning the bony walls of sinuses. They displace and invade surrounding structures by pressure and bony resorption. Orbital involvement mimics the behaviour of benign neoplasms primarily arising in the orbit. Here with we are reporting a case of frontoethmoidal mucocele extending into the orbit, in a 60 year old female patient, whose eye has been enucleated following trauma. Endoscopic sinus surgery done under LA gave good relief from symptoms.

CASE REPORT: A 60 year old female patient, housewife, came with swelling over forehead on right side, since 6 months and nasal obstruction on right side, since 1 month. Swelling over forehead, insidious onset, gradually progressive, not associated with pain or fever. Nasal obstruction on right side, insidious onset, gradually progressive. H/o recurrent attacks of cold and postnasal discharge present. No h/o epistaxis or allergy. She underwent Enucleation of Right eye, 10 years back for post traumatic eye infection. No h/o diabetes, hypertension, asthma or epilepsy.

On examination there is a diffuse swelling over the forehead, extending from midline to the middle of right eyebrow, medial wall of orbit is pushed laterally and inferiorly measuring, about 5cmx5cm. No local rise of temperature or tenderness. On palpation Egg shell crackling present, suggesting thinned out bone. Examination of nose revealed, normal external nose, Nasal septum high deviation towards right, there

is prominent bulla ethmoidalis, pushing middle turbinate medially. Left side of the nose is normal. Posterior rhinoscopy normal. A provisional diagnosis of right frontoethmoidal mucocele is made. Imp DD is dermoid cyst, frontal sinus osteomyelitis, inverted papilloma, neoplasm of paranasal sinuses, neuroma of infra trochlear nerve, benign lesions of orbit. Fibrous dysplasia, osteoma of the frontal sinus can cause secondary mucocele. Xray revealed frontal sinus showing expansile dilatation with homogenous soft tissue density, with no bony erosion, loss of scalloped margins of the frontal sinus. CT scan showing thinning of anterior wall of frontal sinus, with soft tissue isodense mass occupying frontal ethmoidal sinuses extending into right orbit without any intra cranial extension. She is posted for endoscopic sinus surgery after all necessary investigations.

under local anaesthesia, fortwin and phenergan premedication, 4% xylocaine with adrenaline nasal packing and 1% xylocaine with adrenaline infiltration, Right middle meatus visualised. Uncinectomy done. Bulla ethmoidalis is bulging and soft on probing. On opening the bulla, thick mucopurulent secretions drained out. All ethmoidal air cells are coalesced into a single, irregular cavity with eroded inter sinus partitions. Frontal recess is widened and frontal sinus filled with thick secretions, drained out, mucosa is edematous. Lamina papyracea is pushed medially and thinned out. Sphenoid and maxillary sinuses not involved. After draining secretions, external swelling reduced in size. Unhealthy mucosa removed from frontal and ethmoidal sinuses by curettage. Sinuses are irrigated with warm normal saline with simultaneous wide bore suction in nasopharynx. Nasal cavity packed with soframycin gauze. Postoperative recovery good. Treated with broad spectrum intravenous antibiotics, analgesics. Nasal pack removed after 24 hours and discharged after 3 days. She was advised systemic antibiotics for 10days,

mucockinetics and antihistaminics for 2 months, Patient came for regular follow ups every 10 days for 2 months. Every time, endoscopic suction cleaning done. Cavity re-epithelialised by the end of 6 weeks. She was advised review every month for 1 year.



clinical photograph

X ray PNS

CT PNS PLAIN

DISCUSSION: Mucocele is a chronic, expansile, cyst like lesion of the para nasal sinuses which contains sterile, mucoid secretions and is limited by the mucosa of the affected sinus. The most commonly affected sinuses are frontal and ethmoidal sinuses and involvement of sphenoid and maxillary sinus is very rare. The term mucocele is coined by Rollet in 1896. The exact mechanism of mucocele formation is unknown, but most of the authors believe this cystic dilatation of the sinuses to be secondary to obstruction of sinus ostium. The occlusion of the ostium may be secondary to congenital anomalies, allergy, infection, polyps, trauma, surgical intervention in the nose and paranasal sinuses. Post traumatic obliteration of ostium leading to mucocele formation should be suspected in a few cases.

Mucoceles mostly seen in 4th to 7th decades of life, equally common in both sexes. Mucoceles tend to expand and resorb bony walls of the paranasal sinuses and involve the neighbouring structures such as orbit and anterior cranial fossa. Various cytokines and inflammatory mediators are responsible for this bone resorption.

Mucocele can manifest as mucous or mucopurulent nasal discharge, frontal and periorbital pain, facial deformities, diplopia and loss of sense of smell. Clinical findings are ophthalmoplegia, epiphora, chemosis, exophthalmos, optic atrophy, visual disturbances, diffuse bulge in the middle and superior meatus in some cases. Frontal mucocele displaces the eye ball downwards and outwards, where as pure ethmoidal mucocele displaces the eye ball laterally.

Ethmoidal mucoceles are of three types, anterior, middle and posterior. They may show extensions into the maxillary sinus and anterior cranial fossa, orbit and optic canal. Frontal mucoceles extend to ethmoid sinus, orbit and anterior cranial fossa.

Classification of frontal mucoceles is based on their extent.

- Type 1: Mucocele limited to frontal sinus only, with or without orbital extension.
- Type 2: Mucocele involving frontal as well as ethmoids, with or without orbital extension.
- Type 3A: Mucocele erodes the posterior wall of the frontal sinus with minimal or no intracranial involvement.
- Type 3B: Mucocele erodes the posterior wall of frontal sinus with major intracranial extension.
- Type 4: Mucocele erodes the anterior wall of the frontal sinus.
- Type 5A: Both anterior and posterior walls of frontal sinus are involved with minimal or no intracranial extension.
- Type 5B: Both anterior and posterior walls of frontal sinus are involved with major intracranial extension.

X-ray may show remodelling of the sinus walls, loss of scalloped margins, cloudy appearance of the sinus, destruction of the inner table of frontal bone, erosion of orbit and marginal sclerosis. CT scan is more helpful in evaluating the extension of mucocele. Criteria to diagnose mucocele in CT scan, by Perugini, a homogenous isodense mass occupying the sinus, clear margins without signs of infiltration of adjacent structures, patchy osteolysis and no enhancement. Enhancement indicates mucopyocele.

Pathological examination usually reveals pseudostratified ciliated columnar epithelium containing goblet cells, chronic inflammatory cell infiltrate, lymphoplasmacytic cell infiltration, histiocytes, giant cells, hyalinised stroma containing cholesterol cleft.

TREATMENT:

Several treatment options are available and choice depends upon the degree of extension and may range from functional endoscopic sinus surgery to external approach, craniotomy, craniofacial exposure with or without obliteration of the sinus.

The criteria for the frontoethmoidectomy include exenteration of anterior and posterior ethmoidal cells, the opening of frontal sinus to give adequate access to that cavity and complete removal of the lining mucosa, as well as to remove the middle turbinate to ensure a wide opening into the nasal cavity. The best incision for this procedure is Lynch incision. It ensures good access, enabling all the important landmarks to be observed before the next step is undertaken.

Endoscopically we can decompress the mucocele and provide wide drainage into the nasal cavity. Advantages of endoscopic sinus decompression are low morbidity and mortality, no external scar.

CONCLUSION:

Frontoethmoidal mucoceles are benign and early diagnosis and treatment are of paramount importance because they can cause local, orbital and intracranial complications. The objective of therapy is to remove the diseased mucosa completely and restore the drainage from the occluded sinus into the nasal cavity irrespective of the approach either endoscopic or external or combined. The current trend is to conduct functional, minimally invasive, and low morbidity procedure with marsupialisation and abundant drainage of the lesion. Endoscopic decompression is gaining wide acceptance in treating the mucoceles. It is safe and giving lasting relief to the patient.

REFERENCE

- 1) Gady H. Endoscopic management of 108 sinus mucoceles. *The Laryngoscope* 2001; 111: 2131-4. | 2) Lloyd G, Lund VJ, Savy L, Howard D. Radiology in focus. *The Journal of Laryngology and Otology* 2000; 114: 233-6 | 3) Benninger MS, Marks S. The endoscopic management of sphenoid and ethmoid mucoceles with orbital and intranasal extension. *Rhinology* 1995; 33: 157-61 | 4) Har-El G, Dimairo T. Histologic and physiologic studies of marsupialized sinus mucoceles: report of two cases. *The Journal of Otolaryngology* 2000; 29: 195-8 | 5) Ulualp SO, Carlson TK, Toohill RJ. Osteoplastic flap versus modified endoscopic Lothrop procedure in patients with frontal sinus disease. *Am J Rhinology* 2000; 14: 21-6. | 6) Busaba NY, Kieff D. Endoscopic sinus surgery for inflammatory maxillary sinus disease. *The Laryngoscope* 2002; 12: 1378-83. |