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Surgical excision of congenital Dermoid cysts in the orbit

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I. Objectives:

- Surgical removal of congenital orbital dermoids without any surgical complications like optic nerve compression, lagophthalmos, damage to extra ocular muscles and orbital contents and prevention of ischaemia to the globe.
- In our study we operated 6 cases with cosmetically acceptable appearance without any above dreaded complications.

Inclusion criteria:

- Between the ages of 5yrs to old age in both sex.
- Willingness of surgery.
- Cosmetically unacceptable appearance.

Exclusion criteria:

- Orbital dermoids with intra cranial extension.
- Unfit for surgery under anesthesia.
- Not willing for surgery.

Period of study :

- From November 2013 to November 2015

Methodology:

- For all the paitents fulfilling the inclusion criteria a detailed history will be taken and relevant laboratory investigations are done and fitness for anesthesia is evaluated.
- Surgery done under general or local anasthesia and cases followed up.

Surgical approach:

Orbitotomy refers to surgical approach for a orbital mass leison.
There are 4 surgical approaches to the orbit:

1. Anterior orbitotomy
2. Lateral orbitotomy
3. Transfrontal orbitotomy
4. Temporofrontal orbitotomy

Anterior orbital surgery can be approached by 3 main surgical techniques.

1.Transconjunctival approach
2.Transcutaneous approach (through the lids along the orbital rim)
3.Transseptal approach

The decision to use one technique over the other usually depends upon the location of the lesion.

II. Orbital Dermoid:

Introduction:

- Orbital dermoid is a choristoma (histologically normal tissue at abnormal location)
- It is derived from displacement of ectoderm to a subcutaneous location along embryonic lines of closure
- These dermoid cysts are usually isolated and unassociated with systemic diseases.
- Solid epibulbar dermoids are less common but are more important in visual stand point
- They occur at corneal limbus, or lateral canthus, or extending subconjunctivally.

- Limbal dermoids are more noticeable cosmetically and they induce astigmatism with plus cylinder axis in meridian of the leison.
- Epibulbar dermoids are commonly assosiated with hemifacial microsomia or Goldenhar syndrome variants.
- Ipsilateral preauricular appendages, minimal microtia, hearing loss, cleft lip or palate, and upper eyelid coloboma should therefore be looked for.

III. Pathology Of Dermoid:

- Dermoids are most common epithelial cysts accounting for 33% of cysts and nearly 50% of orbital leisons of childhood.
- Usually occur at superotemporal orbit in relation to suture lines of orbital bones often with a bony defect.
- The cyst contents consists of keratin, sebaceous secretions, and hairs that are grossly recognisable.
- Previous rupture of cyst lining leads to replacement of wall by gaint cell foreign body granulomatous reaction.
- When the oily sebaceous secretions extend into the surrounding orbital fat, lipogranulomatous and fibrotic response is initiated and it obscures the cystic nature of swelling.
- The cyst lining consists of keratinising stratified squamous epithelium with various structures embedded in the wall, including sebaceous glands, hair follicles, and eccrine sweat glands .
- Remnants of epithelium and hairs must be looked for to confirm the origin of the inflammation.
- When there are no adnexal structures found in the cyst, it is termed as EPIDERMOID CYST.
- In some longstanding cases, asymptomatic choristomatous cysts, squamous cell carcinoma have been reported in elderly paitents.

Clinical Features:

- SYMPTOMS:

Superficial Orbital Dermoid:

- Presents in the infancy with a painless nodule.
- Most common location superotemporally.
- Ocasionally the superonasal part of orbit.

Deep Dermoid Cyst:

- Presents in adolescence or adult life with gradually increasing protruding eye.
- Sometimes acutely inflammmed orbit due to rupture.

Signs:

Superficial:

- A firm round smooth non tender mass 2-4 cms in diameter ,mobile under the skin but tethered to adjacent periosteum. The posterior margins are easily palpable, denoting a lack of deeper origin or extension.
- Mass is painless,smooth,ovoid to round in shape.firm to rubbery in consistency.It is immobile,being relatively attached to the periosteum of the underlying suture.but it is not attached to underlying skin.

Deep:

- Proptosis, dystopia, or a mass leison with indistinct posterior margins.

Orbitotomy:

Orbitotomy refers to surgical approach for a orbital mass leison.

There are 4 surgical approaches to the orbit:

1. Anterior orbitotomy,
2. Lateral orbitotomy ,
3. Transfrontal orbitotomy **,**
4. Temporofrontal orbitotomy .

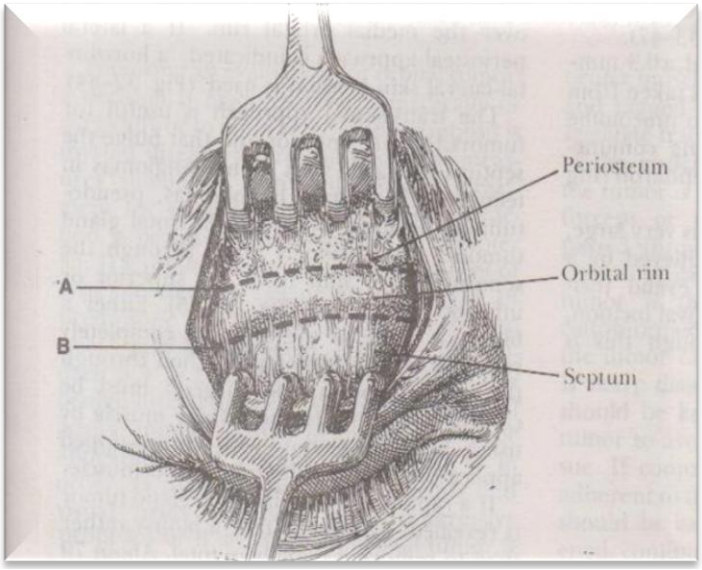
- Whether it can be easily palpable through the skin or through conjunctiva
- Whether partial excision or biopsy versus complete total excision of the tumor mass is anticipated
- TRANSCONJUNCTIVAL APPROACH:
- The transconjunctival approach can be used to enter the orbit between the globe and the orbital rim and it allows access to abnormalities located along the globe itself.

- Especially in cases involving problems such as orbital lymphoma and perimuscular tumors such as schwanomas and other neurogenic tumors.
- It can also provide exposure of leisons along the muscle cone.
- Usually a lateral canthotomy is required with dissection through conjunctiva, orbicularis muscle and orbital septum.
- Prolapsed orbital fat and damage to the oblique muscles are potential surgical problems.

Transcutaneous Approach:

- Orbital rim or anterior orbital skin incisions can be made superiorly along the eyebrow itself.
- If the tumor is in the superior orbit, the incision through the skin and orbicularis is made adjacent to inferior border of eyebrow and slightly larger than the horizontal dimension of the tumor.
- If the tumor involves the inferior orbit, an infralash-skin incision and flap are performed.

Anterior Orbitotomy:



A. TRANS PERIOSTEAL approach
B. TRANS SEPTAL approach

- Attention must be given to important anatomical attachments,superiorly including supraorbital vascular bundle and the trochlea, which lies 4mm behind the orbital rim superonasally.
- Once the dissection is carried out, to the level of periosteum, the periosteum is elevated using a periosteal elevator, entering the potential space between bone and the periosteum with care being taken in the supranasal region, damage to the trochlea and superior oblique muscle can result in bilateral torsional diplopia.
- It is important to close the periosteum with absorbable sutures superiorly to maintain normal suspension of upper eyelid structures.
- Inferior orbital rim incisions can be made directly at the level of orbital rim or can be made using infraciliary approach
- Again care must be taken to avoid damage to infraorbital nerve and vessels.
- The inferior approach donot, in general allow good access to posteriorly displaced structures within the orbit or with lacrimal gland and other lateral tumors.
- But, it is an excellent approach to excise an anteriorly displaced tumor such as an orbital DERMOID, to treat orbital fractures, and to obtain biopsy specimens of infiltrative tumors of orbit (metastatic tumors).

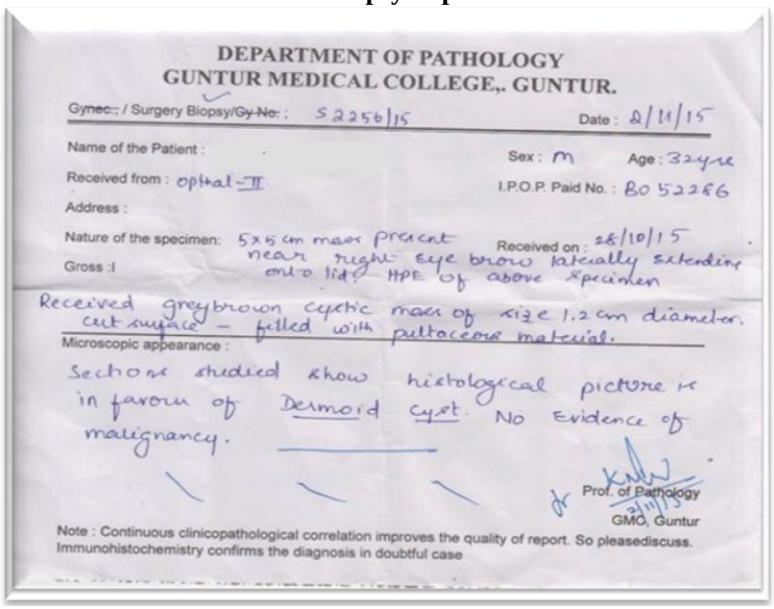
Trans Septal Approach:

- It is useful for the tumors that are anterior and that bulge the septum forwards such as DERMOID CYSTS and lacrimal gland tumors, hemangiomas in teenagers, malignant lymphomas.
- An incision is made through the septum 2 to 3 mm from the superior or inferior orbital rim.

Biopsy Reports:

- The biopsy reports of 4 cases turned out to be dermoid cysts
- The biopsy reports of 2 cases turned out to be epidermoid cysts

Case – 1 Biopsy Report:



DEPARTMENT OF PATHOLOGY
GUNTUR MEDICAL COLLEGE,. GUNTUR.

Gynec:: / Surgery Biopsy/~~Gy No:~~ : 5225b/15 Date : 2/11/15

Name of the Patient :

Sex : m Age : 32yrs

Received from : opthal-III I.P.O.P. Paid No. : BO 52286

Address :

Nature of the specimen: 5x5 cm mass present near right eye brow laterally extending onto lid. HPE of above specimen Received on : 28/10/15

Gross :I

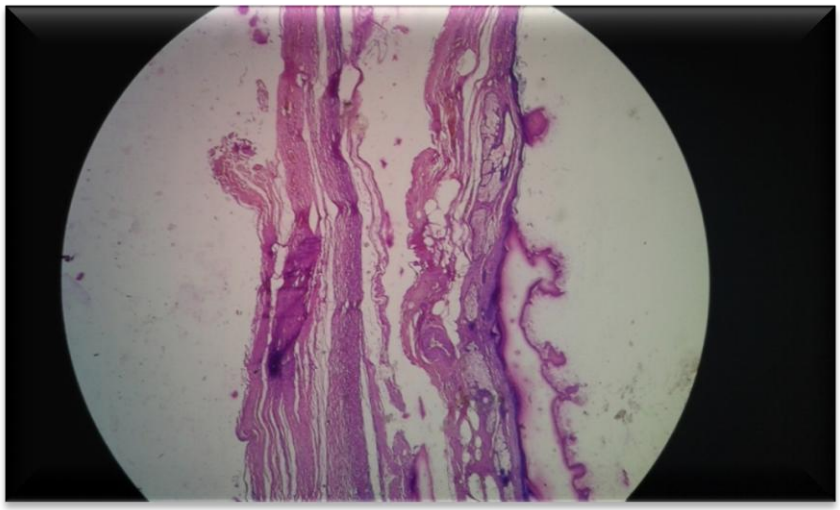
Received grey brown cystic mass of size 1.2 cm diameter. cut surface - filled with pultaceous material.

Microscopic appearance :

Sections studied show histological picture is in favour of Dermoid cyst. No Evidence of malignancy.

Prof. of Pathology
GMC, Guntur

Note : Continuous clinicopathological correlation improves the quality of report. So pleasediscuss. Immunohistochemistry confirms the diagnosis in doubtful case



Case -2 Biopsy Report:

Duplicate Copy

DEPARTMENT OF PATHOLOGY
GUNTUR MEDICAL COLLEGE,. GUNTUR.

Gynec. / Surgery Biopsy/Cy No.: S. 1875/14 Date: 20/10/2014

Name of the Patient : Sex: M Age: 19 yrs

Received from : Oph-II I.P.O.P. Paid No.: AO 47316.

Address :

Nature of the specimen: Dermoid excision biopsy for HPE. Received on: 15/10/2014

Gross :I

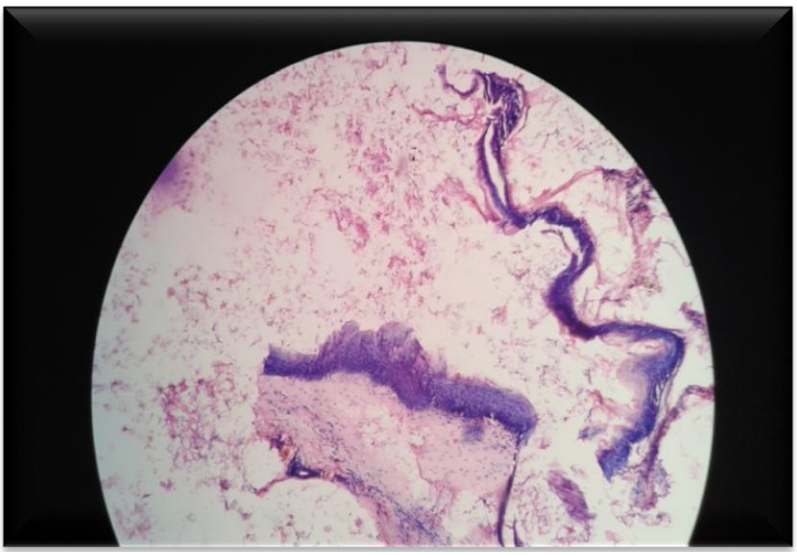
Received single grey brown nodular mass of size 2x1x0.5cm. cut section- filled with Puttaceous material.

Microscopic appearance :

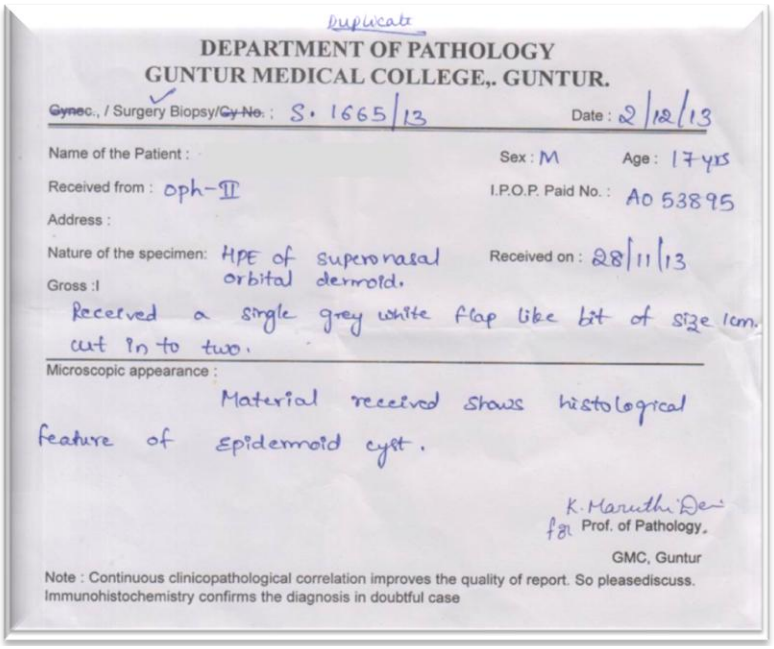
The Histological picture is that of Epidermoid cyst.

Prof. of Pathology
GMC, Guntur

Note : Continuous clinicopathological correlation improves the quality of report. So pleasediscuss. Immunohistochemistry confirms the diagnosis in doubtful case



Case -3 Biopsy Reports:



Duplicate

DEPARTMENT OF PATHOLOGY
GUNTUR MEDICAL COLLEGE,. GUNTUR.

~~Gynec~~., / Surgery Biopsy/~~Cy No~~. : S. 1665/13 Date : 2/12/13

Name of the Patient : Sex : M Age : 17 yrs

Received from : oph-II I.P.O.P. Paid No. : A0 53895

Address :

Nature of the specimen: HPE of superonasal orbital dermoid. Received on : 28/11/13

Gross :I

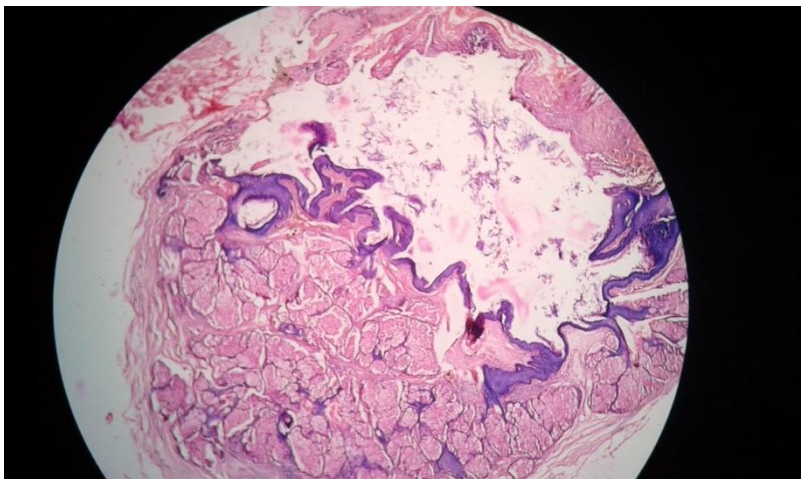
Received a single grey white flap like bit of size 1cm. cut in to two.

Microscopic appearance :

Material received shows histological feature of epidermoid cyst.

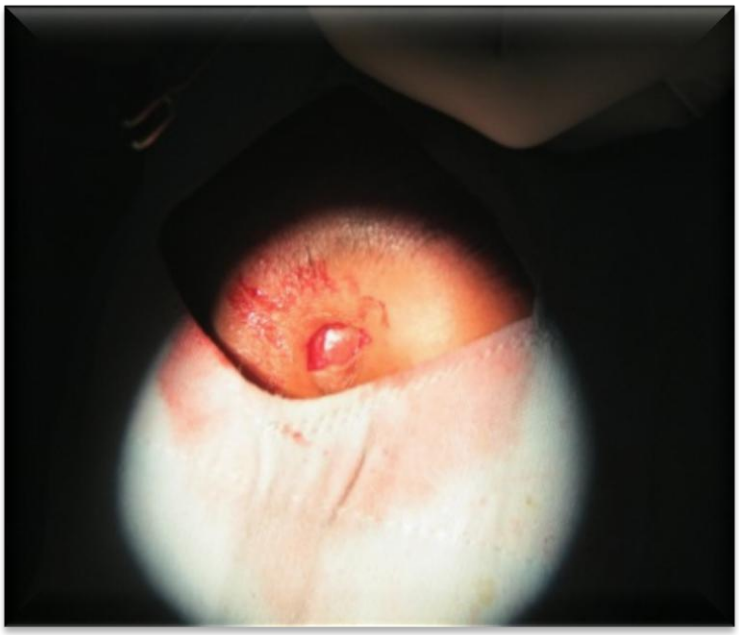
K. Maruthi Devi
for Prof. of Pathology,
GMC, Guntur

Note : Continuous clinicopathological correlation improves the quality of report. So pleasediscuss. Immunohistochemistry confirms the diagnosis in doubtful case



Case -1 Pre Oprative Image:

Intra Operative Image:



Post Operative Image:

Case-2 Pre Operative Image:

Intra Operative Image:

Post Operative Image:

Case -3 Pre Operative Image:

Intra Operative Image:

Post Operative Image:

Complications:

- Potential complications to be prevented:
- Damage to :
  - Orbicularis oculi
  - LPS
  - Supraorbital vascular bundle
  - Trochlea and superior oblique muscle
  - Orbital septum-Prolapse of orbital fat
- Corneal lesions
- Ocular ischaemia
- Optic nerve compression.

IV. Conclusion:

A series of cases done at GGH/GMC, Guntur , without complications like damage of the nerves, vessels resulting in occular ischaemia, extra occular muscles or tendons, orbital septum etc. The overall outcome is uneventful without any vision threatening complications like optic nerve compression, lagophthalmos, exposure keratitis and occular ischaemic syndromes. It is cosmetically well accepted.

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