

المؤتمر السنوي الدولي للجمعية المصرية
INTERNATIONAL CONGRESS OF THE

EGYPTIAN OPHTHALMOLOGICAL SOCIETY

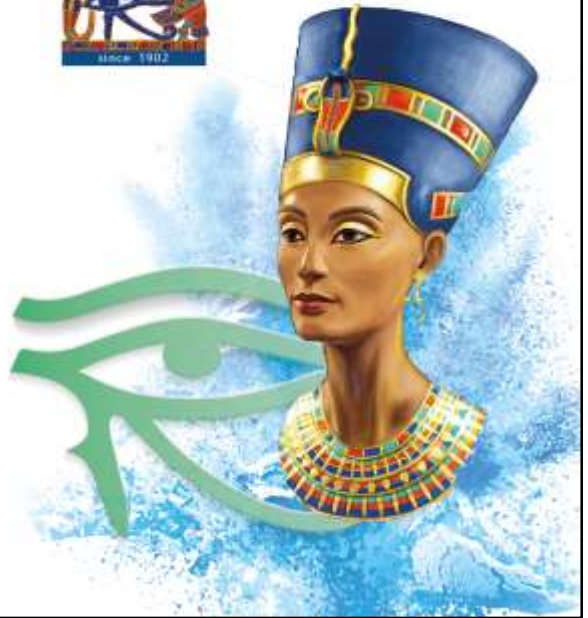
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Contracted socket rehabilitation

ICD-9 Diagnosis Code 372.64
ICD-10 Diagnosis Code H59.89

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Lecturer of Ophthalmology
Al-Azhar University for girls



Disclosure

I have No financial interest in the procedures or materials displayed in this presentation

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Which of these cases has a contracted socket



A



B



C

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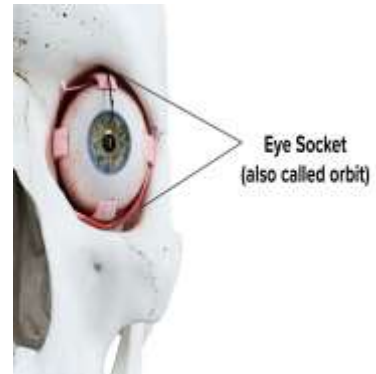
Important terms

- ▶ Eye socket
- ▶ Anophthalmic socket
- ▶ Post Enucleation Socket Syndrome (PESS) _ anophthalmic socket syndrome
- ▶ Contracted socket

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Eye socket

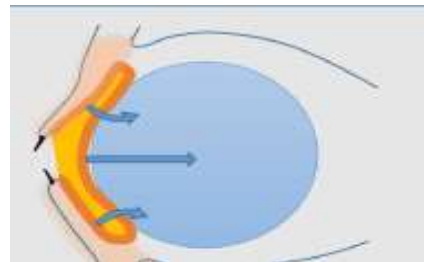
- ▶ The term Eye socket refers to:
 - Eyelids
 - Conjunctival fornices
 - Orbital structures(bony cavity and soft tissues)
- ▶ The average adult orbital volume is about 30cc



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Anophthalmic socket

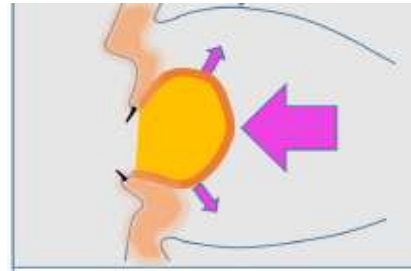
- ▶ The term 'anophthalmic socket' is usually defined as an orbit not containing an eyeball, but with orbital soft tissues and eyelid structures .
- ▶ Most common cause: enucleation
- ▶ However it isn't so simple .Ophthalmos in Greek means the eye and ophthalmus: is one having a (specified) kind of eye.



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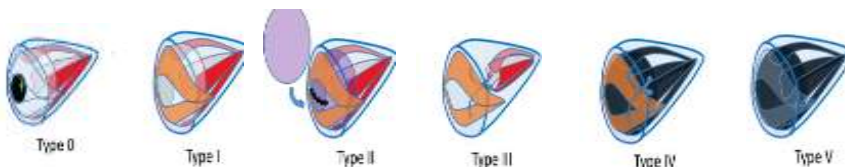
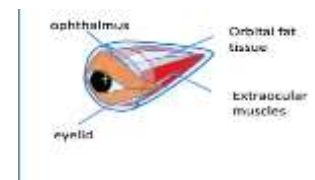


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Anophthalmic Socket

- ▶ Anatomic Classification of the Anophthalmic Eye Socket (Types 0–V)
- Type 0 :eyelid defect type, eyelid defect causes blindness unless immediate intervention
- Type I : phthisis bulbi type, anatomical ophthalmus preservation with blindness
- Type II :substitution type ,implant placed after evisceration or enucleation
- Type III :enucleation type ,enucleation of ophthalmus
- Type IV :exenteration (incomplete) type ,Saving eyelid
- Type V : exenteration (complete) type ,including eyelid defect

Hihara et al, 2022



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IDEAL ANOPHTHALMIC SOCKET

The ideal anophthalmic socket has the following characteristics:

- ▶ a well-centered orbital implant of adequate volume;
- ▶ a smooth, healthy conjunctival lining;
- ▶ adequate superior and inferior fornices to maintain the prosthesis and permit complete eyelid closure;
- ▶ and functioning upper and lower eyelids to enable complete closure and wetting of the prosthesis



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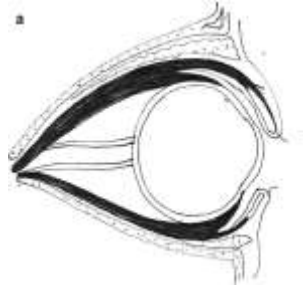
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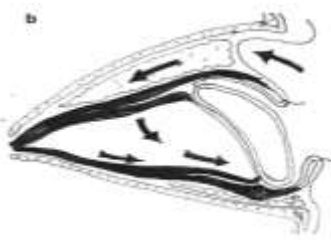
Post Enucleation Socket Syndrome (PESS)

- ▶ PESS is characterized by a deep upper eyelid sulcus, lower lid laxity, and eyelid malpositions *without shrinkage or shortening of the soft tissues.*



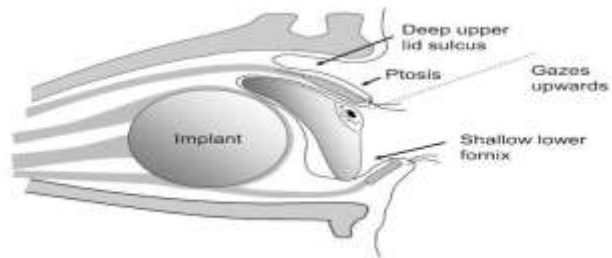
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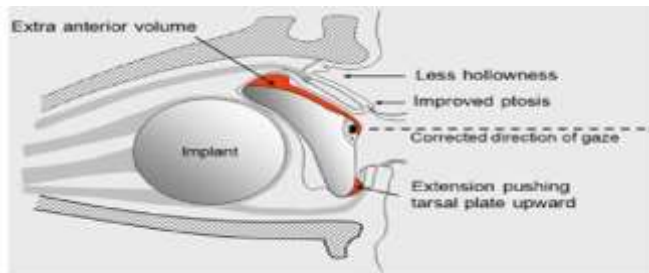
anophthalmic socket syndrome."

- ▶ Inadequate orbital volume results in a sunken appearance with an abnormally deep superior sulcus.
- ▶ Since a larger prosthetic eye is then needed to improve the cosmetic appearance, lower lid sagging occurs due to the increased weight of the prosthesis.



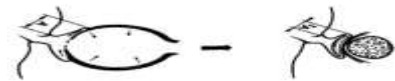
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Contacted socket

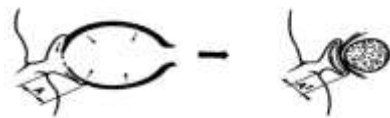
- ▶ A contracted socket is a complication of an anophthalmic socket which results in the inability to support a prosthesis.
- ▶ The contracted socket should not be confused with Post Enucleation Socket Syndrome (PESS)



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Contacted socket

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▶ Contracted socket is characterized by

extensive loss of conjunctiva surface area

deep scar formation

conjunctiva fornices contracture

shrinkage of orbital fat



Causes of contracture of socket



Faulty/ill-fitting prosthesis,



Non-wearing of prosthesis



Multiple socket procedures, cicatrizing



Alkali burns, Irradiation following enucleation in some retinoblastoma,



Implant migration / exposure



Congenital microphthalmic or anophthalmic

Contracted socket classifications

- ▶ Guibor has classified clinically contracted socket into 4 morphological types:



Anophthalmic



Ophthalmic



Microphthalmic



Hypophthalmic

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Classifications of contracted socket

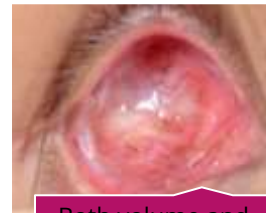
- ▶ Molgat and Guyuron classification of contracted socket:



Primary volume deficits



Primary mucosal deficits



Both volume and mucosal deficits

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Classifications of contracted socket

► Baylis et al. classification of contracted sockets into two groups:



Dry surfaces



Moist conjunctival surfaces



Classifications of contracted socket



Grade 1

Grade 2

Grade 3

Grade 4



Grade 5



Classification of contracted socket

- ▶ Gopal krishna classification , 1980 a modification added volume and surface deficits and surfaces wetability

Grade	Severity	Surface loss	Volume loss	Schirmer's test (mm)
Grade 0	None	Normal socket with deep and well-formed fornices. No contraction	Absent	>15
Grade I	Minimal	Shallow inferior fornix or shelving of the inferior fornix	Absent	>10-15
Grade II	Mild	Loss of both inferior and superior fornices	Absent	>5-10
Grade III	Moderate	Loss of inferior, superior, medial, and lateral fornices	Present	>2-5
Grade IV	Severe	Loss of all the fornices and reduction of palpebral aperture	Present	0-2
Grade V	Very severe	Recurrence of contraction of socket after multiple failed procedures	Present	0

Contracted socket evaluation

History taking and demographic data(age, gender, duration; young age are more seeking for aesthetic procedures)

Assessment of the socket

Area of the Socket :

- ▶ The area is assessed particularly by the depth of the fornices.
- ▶ The inferior fornix is the most important as it has to support the prosthesis.
- ▶ The other fornices also need to be adequate to ensure the prosthesis fitting.





Assessment of the socket

Assessment of surface loss (Courtesy to AAO 2020)

Contracted socket evaluation

Volume of the socket :

- ▶ The volume is assessed by noting the relative depth of the socket compared to the fellow eye. The Superior sulcus deformity and presence of ptosis are also indicators of volume loss.

Dry / Wet socket :

- ▶ There should be no active discharge from the socket. Dry fibrosed conjunctiva indicates a poorly vascularised socket.

Movements :

- ▶ The movements of the muscles are looked for. In case of dermis fat grafting, suturing the muscles to the graft ensures better survival.

Contracted socket evaluation

Eyelid :

- ▶ Eyelid notches and abnormalities need to be looked out for. In longstanding cases there may be stretching and lengthening of the lowerlid which would need to be tackled simultaneously. Eyelid closure needs to be looked for too.

Associated bony contraction :

- ▶ In case of injury or post radiotherapy, there may be bony abnormalities/fractures which may need to be tackled.

A computed tomographic scan (CT scan)

- ▶ may be necessary to assess for orbital cavity size (which may be hypoplastic in congenital anophthalmos), bony contracture, and associated orbital fractures which may be contributing to a sunken appearance (cases with previous trauma) and to ascertain the presence, size, and position of an orbital implant

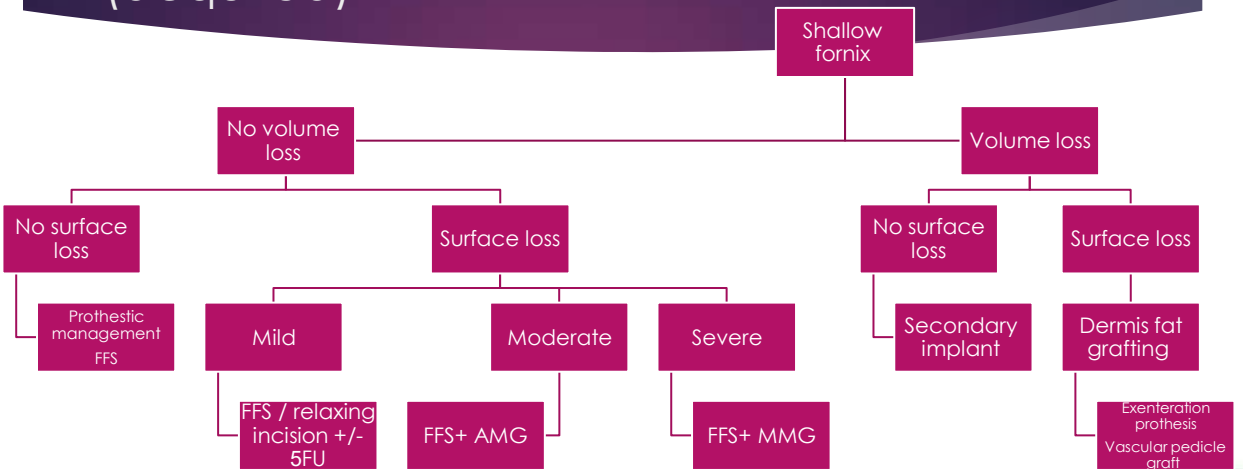
Management of contracted socket

Congenital contracted socket

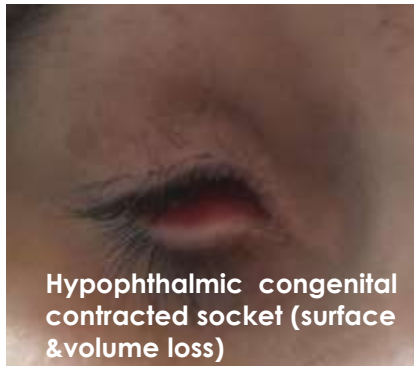
- ▶ it is necessary to consider both soft tissue and bony hypoplasia.
- ▶ Treatment should commence as early as possible as early intervention will help stimulate the growth of the orbital bones and the periocular and midfacial tissues.
- ▶ The steps of reconstruction are:
 - (a) Expansion of horizontal and vertical eyelid apertures.
 - (b) Recreation of fornices.
 - (c) Expansion of bony orbit.
 - (d) Replacement of volume.



Management of contracted socket (acquired)



Which of these cases has a contracted socket



A



B



C

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Case presentation

- ▶ Female patient had a previous evisceration and **not wearing artificial eye/ Conformers.**
- ▶ No volume loss: CT – proper implant size but with some retraction in the orbit
- ▶ Good motility and lid closure, conjunctival surface
- ▶ Fornices and surface area assessment



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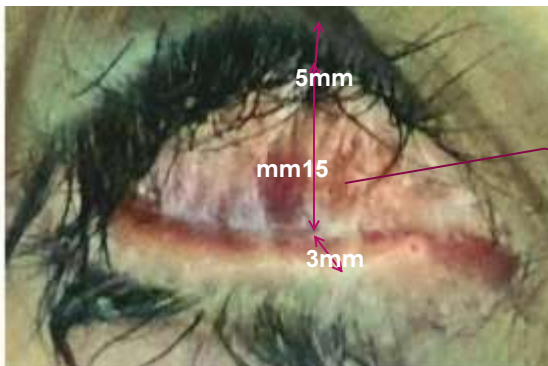
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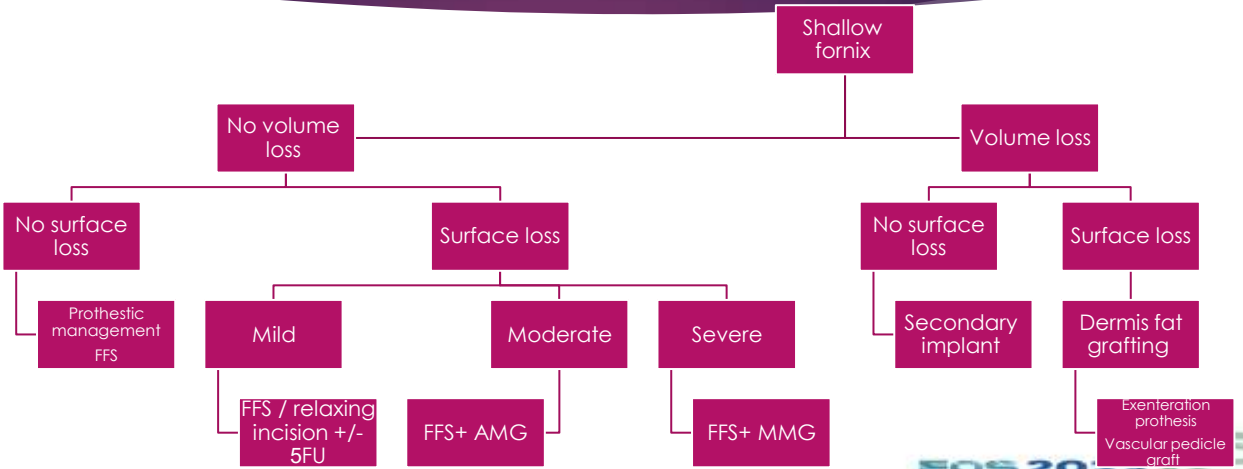
Assessment of the socket surface area



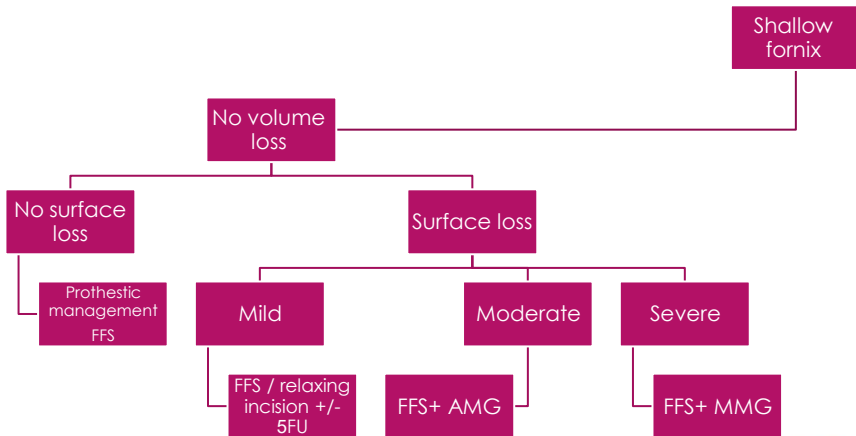
About 23
mm
(Severe
surface
loss)

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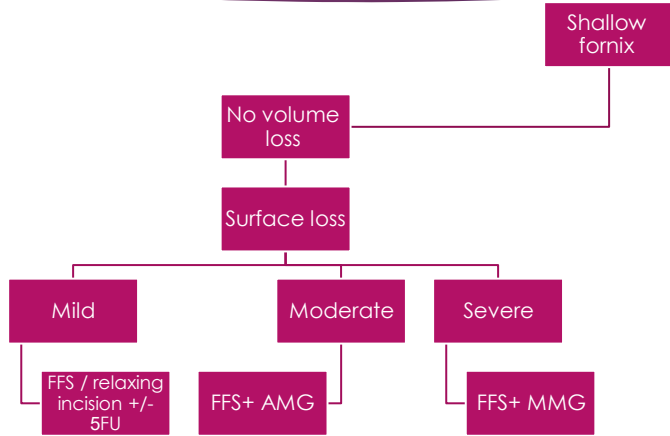
Management of contracted socket (acquired)



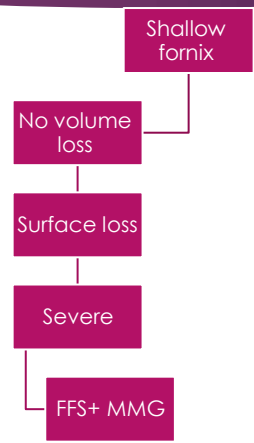
Management of contracted socket (acquired)



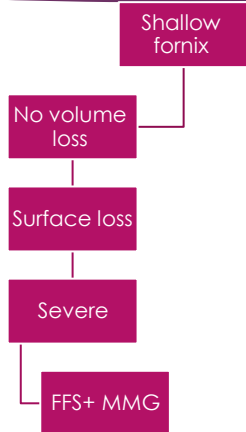
Management of contracted socket (acquired)



Management of contracted socket (acquired)



Management of contracted socket (acquired)





FFS + MMG
Courtesy to AAO 2020

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- ▶ • American Academy of Ophthalmology, BCSC, section 7 , 2013-2014. chapter 8 pg.117- 127.
- ▶ • Albert and Jakobiek, Principles and Practice of Ophthalmology, vol 3, 3rd edition, 2008, section 10, chapter 267, pg.3519-3527.
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