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Surgical Decision Making in the Management of the Contracted Anophthalmic Socket – a Tertiary Eye Centre Experience.

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Background: An anophthalmic socket is devoid of an eyeball, often following non-salvageable ocular injuries, severe ocular infections, and ocular/orbital malignancies. It could be congenital on rare occasions, though most cases are acquired. The anophthalmic socket undergoes progressive structural deformity and complications that preclude retention of the desired ocular prosthesis. Contracted socket is a common complication resulting in the inability to retain an ocular prosthesis, unacceptable functional and aesthetic deficits, and negative

impact on the quality of life¹. Surgical reconstruction of the contracted socket is often indicated and can be quite challenging for the oculoplastics surgeon^{2,3,4}. This study aims to assess the complications arising in the acquired anophthalmic sockets and factors guiding surgical decision-making in managing contracted anophthalmic sockets with the goal of achieving improved surgical, functional, and aesthetic outcomes.

Methods: A cross-sectional hospital-based study of acquired anophthalmic patients presenting from January 2018 – December 2022 to the Oculoplastics clinic of a tertiary eye centre was conducted. Data sources were clinic and surgical theatre records. Relevant demographic data were obtained, and clinical evaluations were performed to document complications arising in the anophthalmic socket. Vertical and horizontal conjunctival dimensions and forniceal depths were measured with Castroviejo’s Callipers. Surgical decision-making on the choice of appropriate surgical procedure for contracted socket reconstruction was based on Gopal Krishna classification⁵ and conjunctival surface dimensions.

Patients with conjunctival vertical dimensions 40 - 45mm were offered fornix suture deepening procedure, and those with 35mm without volume loss had oral mucous membrane graft, while those with surface and volume loss in Grades 3 -5 Gopal Krishna classifications⁵ had dermis fat graft surgery done. Patients were followed up for six - months postoperatively. Successful surgical outcome was defined as adequate conjunctival fornices with the ability to retain the prosthesis satisfactorily.

Ethical approval was obtained from the institutional health research and ethics committee. The study complied with the Tenets of the Helsinki Declaration.

Results: A total of 1,464 new oculoplastic patients presented during the study period. 89 (6.1%) presented with acquired anophthalmic sockets. Age ranged between 3 - 86 years with a mean of 36.8±22.5 years. 57 (64%) were females and 32 (36%) were males. Leading aetiology of anophthalmic sockets was trauma 58 (65.1%), followed by severe ocular infections 16 (18.0%), and intraocular tumours 10 (11.8%). The most common complications necessitating surgery

Figure 1. Preoperative complications indicative of surgery

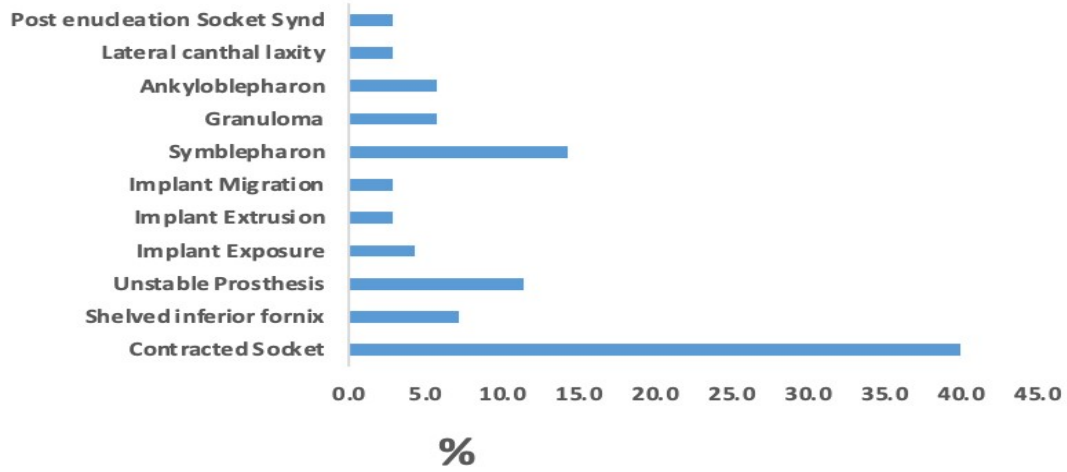
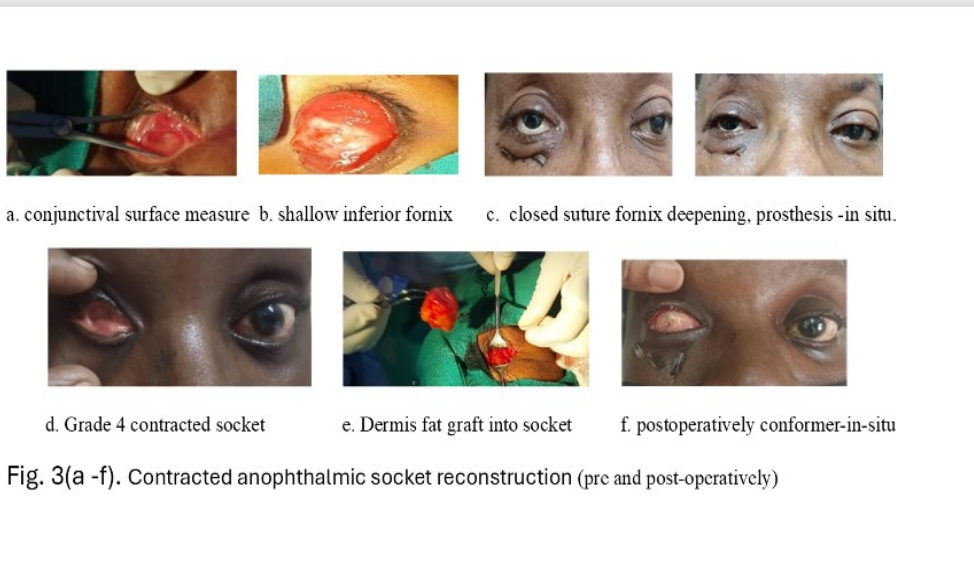
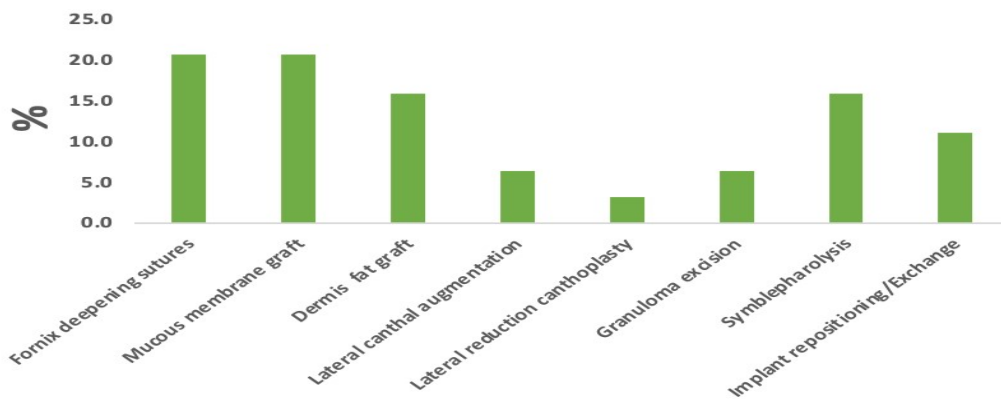


Figure 2. Surgical reconstructive procedures in contracted sockets



(Figure.1) were contracted socket - 28 (40%), symblepharon -10 (14.3%), unstable prosthesis - 8 (11.4%), and shelved inferior fornix 5 (7.1%). Based on Gopal Krishna classification and conjunctival surface dimensions, suture fornix deepening-13 (20.6%), mucous membrane graft -13 (20.6%), and dermis fat graft -10 (15.9%) were the most frequent surgeries performed (Figure 2). Post-operative outcomes were satisfactory in all cases with well-seated conformers post-operatively, and prostheses inserted six to eight weeks post-operatively (Figure 3). The failure rate six months postoperatively was 14.3% (2 failed cases of dermis fat graft who returned with total obliteration of fornices, and 2 cases of suture fornix deepening procedure who returned with unstable prosthesis).

Discussion and conclusion: In this study, a considerable 40% of all cases of acquired anophthalmos developed contracted socket. In a previous study, contracted sockets constituted 84% of all socket disorders among orbito-oculoplastic diseases.⁶ In clinical practice, anophthalmic socket evaluation involves assessing the conjunctival surface and socket volume capacity^{2,7}. This is very essential for the successful reconstruction of a contracted socket. Utilizing guided surgical decision-making as done in this study provided satisfactory postoperative outcomes and minimal post-operative failure rate. This is similar to low postoperative complications as reported in earlier studies.⁸⁻¹⁰ This dictates that the best surgical techniques be appropriately employed in the management of contracted anophthalmic sockets to improve surgical outcomes, improve cosmesis and avoid the risk of repeat surgery as this predisposes to recurrence and worsened socket contraction.

Keywords: *Anophthalmic, contracted sockets, suture fornix deepening, oral mucous membrane graft, dermis fat graft.*

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