

A Particular Approach Route to Retrobulbar Tumor: Lateral Orbitotomy by an Upper Eyelid Crease Incision: Case Report

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The choice for the approach of orbital tumors depends on different factors, the least invasive and the most safety approach should be chosen. Different surgical approaches have been used for removal of orbital tumors.

The authors report a clinical case of retrobulbar schwannoma of the orbit showing indications, advantages and particularities of surgical approach "lateral orbitotomy by an upper crease incision".

1. Case Report

A 49-year-old woman was referred to our Department of Maxillo-Facial Surgery by the Department of Adult Ophthalmology with the complaint of progressive painless protrusion of the left eye 8 months ago, complicated by the diminution of vision, deviation of the eyeball down and out without restriction of its movements (Fig 1). There were no ophthalmic complaints. The visual acuity in both eyes was 4/10 and fundi were normal.

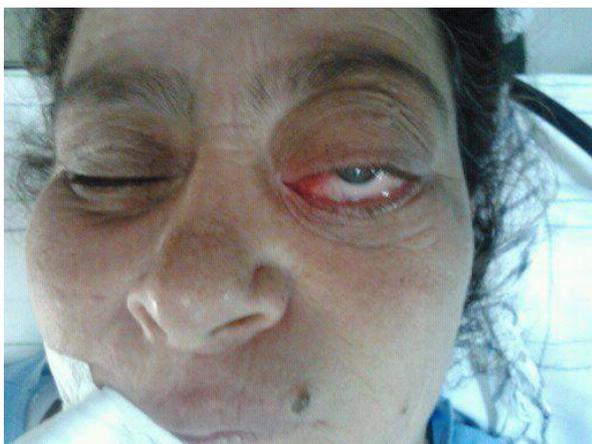


Figure 1

Figure 1- 49-Year-old female with long-standing left proptosis, showing lateral and upper displacement of the left globe.

Orbital computed tomography scan showed an ovoid well-defined intraconal and retrobulbar tumor displacing the optic nerve medially on the left side (Fig 2). Contrast studies showed no enhancement in density of the tumor. Also it

confirmed the diagnosis of proptosis grade III (the total of the eyeball was before external bicanthal line).



Figure 2

Figure 2 –Tissue window CT scan of the orbit showing well circumscribed and retro bulbar tumor of the left orbit.



Figure 3



Figure 4 (a)



Figure 4 (b)

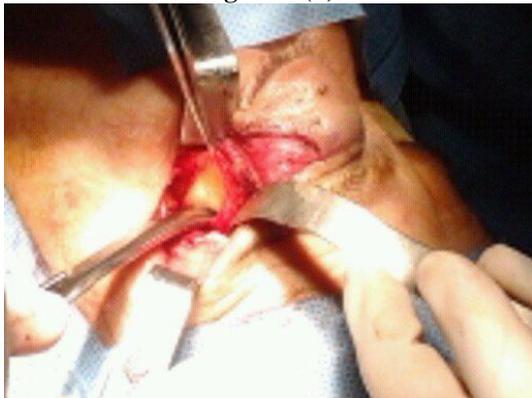


Figure 5 (a)



Figure 5 (b)



Figure 6



Figure 7

Figure 3-An incision is made in the natural folds of skin on the upper eyelid along the palpebral fold.

Figure 4 a/b- Subperiosteal decollement and osteotomy of the lateral wall of the orbit.

Figure 5 a/b/-Lateral orbitotomy showing yellow solid tumor mass

Figure 6 -Photograph showing the brown-yellow, smooth, and well encapsulated mass removed entirely without violation of its capsule.

Figure 7-Postoperative photograph with sutures in situ.

A lateral orbitotomy by an upper eyelid crease incision was done and a brown-yellow, well encapsulated, retroocular, and smooth mass was found on the medial side of the lateral rectus muscle which was easily dissected and excised in its entirety, the adjacent orbital fat tissue was normal (Fig 3,4,5,6).

The patient had an uneventful postoperative recovery, had full ocular function and partial right ptosis with remitted completely within the next 4 months (Fig 7).

Histologically, the tumor was composed of plump spindle-shaped nuclei compactly disposed with abundant eosinophilic cytoplasm (Antoni type A neurilemoma).

2. Surgical Procedure

Under general anaesthesia, the patient placed in the supine position, head turned to side opposition the lesion, after Local infiltration with an anesthesia-vasoconstrictor mixture (lidocaine with adrenalin) to reduce superficial bleeding, the incision is always started in the upper eyelid crease and is extended laterally outside of the lateral canthus on 10-15

mm in order to avoid injury to the frontal branch of the facial nerve (2,7).

The orbicularis oculi muscle is dissected respecting fiber direction until to the plan of the orbital septum; it cannot damage the levator of the upper eyelid. The dissection is carried out between the plan of the septum and the orbicularis oculi muscle to both lateral and upper orbital rim. the periosteum is incised 2 mm posterior to the levator of the upper eyelid, the periorbita is dissected from the bone with blunt periosteal elevation of the inner side of the lateral, upper orbital wall and external part of the orbital floor, the temporal muscle is released from the outer of lateral orbital wall only if removing the component bone is required, it will be reattached at the end of operation.

By perforating osteotomy, which creates a series of postage stamp-type perforations, the removal of the lateral wall of the orbit is done; malleable retractor is placed between the orbital contents and the lateral wall to protect them while an electric surgical drill is used to make an osteotomy.

If the lower section is often made through the base of the orbital process of the zygomatic bone, the upper section, however, must be made above of the zygomaticofrontal suture which gives us a excellent exposition. In depth, the bone's section reaches the sphénomaxillary fissure; preplaced holes drilled on the lateral wall allowed refixation upon completion of the procedure. After excising of the anterolateral orbital wall, removal and enlargement of the posterior wall is completed using combination of luer rongeur and drills. The enlargement can be extended posterior all the way to the orbital apex. A lateral periorbita so exposed, the incision is made, avoiding the lateral rectus muscle which is retracted superiorly or inferiorly, depending of the tumor,s situation. This lateral approach is periextrarobital and protects the orbit's contents. The tumor is identified; it is dissected using microdissection instruments or blund-tipped scissors, dissectors and standard orbital retractors and is freed up entirely.

The tumor removal is done and the haemostasis is achieved, the lateral rectus muscle is verified that is intact and the periorbita is replaced into own position and sutured, the lateral wall is replaced and refixed by non absorbable suture or osteosynthesis plate, the temoprals fascia, the temporal muscle and the periosteum periorbita are closed by separated absorbable suture points and the skin is closed by an intradermal running suture.

3. Discussion

Anatomical location of the orbit between the skull and facial skeleton, explain in some cases the multidisciplinary management of tumors of the orbit involving ophthalmologists, oncologists, neurosurgeons, maxillofacial surgeons and ENT surgeons. Surgical management of orbital tumors includes generally two types of approaches: the transorbital approaches and the extraorbital approaches, the choice of the appropriate approach take in consideration a number of factors: the localization; the size; the extension; the vascularity and degree of infiltration of adjacent tissue which are well appreciated by the Computerized

tomography and MR imaging, the goal of surgery (biopsy, gross-total excision), and the patient's clinical status (3,4,6).

The lateral orbitotomy is one of transorbital approaches which was first proposed in 1889 by Kronlein with the curvilinear incision with anterior convexity along the lateral orbital rim, it was modified by Wright-Stallard Stallard with their italic «S» shape incision that ran parallel to the external orbital rim from the end of the brow, finally running parallel to the zygomatic arch. Berk modified Kronlein's technique and had used horizontal incision going posteriorly through lateral canthus offer (2,9,10) . Our approach route in our case and others cases published is used an modified eyelid incision , this incision is made in the crease of the upper eyelid and extended laterally outside of lateral canthus in order to avoid lesion of frontal branch of the facial nerve.

Lateral orbitotomy by upper eyelid crease approach offer excellent scar camouflage and direct access with minimal undermining or dissection and allow excellent access to well-circumscribed lesions located at the superior, lateral, inferior to the orbital cone, to retrobulbar tumors and to lacrymal tumors (1,3,5,7). Lateral orbitotomy have been proposed for fractures of the lateral wall of the orbit and for orbital decompression in Graves' ophthalmopathy with the removal of the lateral orbital rim. Many authors consider this approach with the removal of the lateral orbital rim as the workhorse of exposure for biopsy and removal of retrobulbar tumors (2,4,8).

4. Conclusion

Lateral orbitotomy by upper eyelid crease incision provide a wide surgical field to intraorbital lesions which locate in the lateral, superior, and inferior compartments of the orbit. It provides wide and deep exposure of the orbital contents with relatively low operative risk. This approach route allows a good protection of the vital and fonctionnal structures of the orbit.

References

- [1] Abouchadi.A, Capon-Degardin.N, Martinot-Duquennoy.V, Pellerin.P. Eyelid crease incision for lateral orbitotomy. *Annales de chirurgie plastique esthétique* 50 (2005) 221–227
- [2] Chiriac.A, Daja.S, Iliescu.B, Poata.I. Our experience in surgical treatment of intraorbital tumors. *Romanian Neurosurgery* (2012) XIX 4: 289 – 293
- [3] Evans BT, Mourouzis C. Lateral orbitotomy: a useful technique in the management of severe traumatic disruption of the lateral orbital skeleton. *Int J Oral Maxillofac Surg.* 2009 Sep;38(9):984-7.
- [4] Halli RC, Mishra S, Kini YK, Kharkar VR, Hebbale MA. Modified lateral orbitotomy approach: a novel technique in the management of lacrimal gland tumors. *J Craniofac Surg.* 2011 May;22(3):1035-8.
- [5] Iacoangeli M, Neri P, Balercia P, Lupi E, Di Rienzo A, Nocchi N, Alvaro L, Scerrati M. Piezosurgery for osteotomies in orbital surgery: Our experience and review of the literature. *Int J Surg Case Rep.* 2013;4(2):188-91.

- [6] Misra Somen, Jakkula G Gayatri, Nandwani Rupali, Reddy Venugopal, Halli Rajshekhar. Modified lateral orbitotomy approach in the management of large lacrimal gland tumour –case report. *Pravara Med Rev* 2009; 1(4)
- [7] Okay O, et al. Lateral Orbitotomy Approach to Orbital Tumors. *Turkish Neurosurgery* 2010, Vol: 20, No: 2, 167-172
- [8] Surej Kumar LK, Vinod MK, Menon PV. Lateral orbital approach: Gateway to intraorbital lesions. *Natl J Maxillofac Surg.* 2014 Jul-Dec;5(2):217-20.
- [9] Wallace SA, Michael Meyer R, Cirivello MJ, Cho RI. Lateral orbitotomy for a maxillary nerve schwannoma: case report. *J Neurosurg.* 2016 Oct ; 125(4):869-876.
- [10] Werner Hassler, Renate Unsöld, Uta Schick. Orbital Tumors: Diagnosis and Surgical Treatment. *Dtsch Arztebl* 2007; 104(8): A 496–501.