Transmaxillary approach to the orbit; surgical tecnique

Ersin Erdogan (1), Kaan Berat Guclu (2), Kaan Atac (3), Sinan Kocaturk (2)

Ufuk University Medical School Departments of Neurosurgery (1), Otorhinolaryngology (2) and Radiology (3)

Background

- Various surgical approaches have been used for removal of lesions within the orbit. For access to the orbital region, different approaches (lateral, medial, transethmoidal, cranial) have been described.

- Such as the others, transmaxillary approach can be used for the aim of excision of orbital tumors, and orbital decompression.

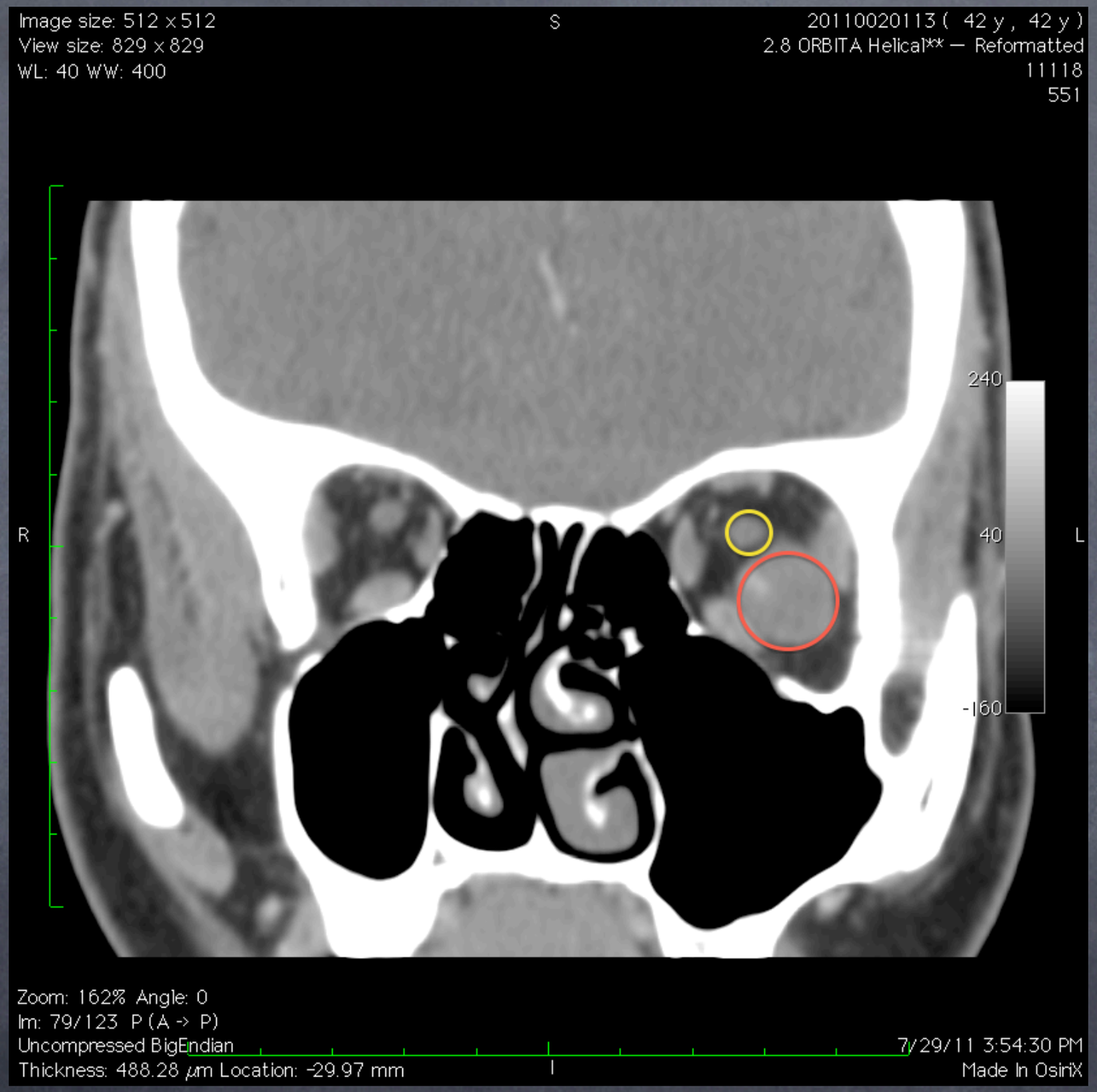
- This is a minimally invasive, extradural cranial base approach to the orbit through the maxillary sinus that avoid craniotomy and brain retraction.

- It is less destrucive and cosmetically more convenient than the other approaches to the orbit.

Case

- 43-year-old woman with a tumor of the orbital base, which was diagnosed incidentally on MRI
- She was admitted to neurosurgery clinic with headache behind her left ear.
- Neurologic exam normal but, minimal exophtalmus

Preop-CT



Red circle; cavernoma, yellow circle optic nerve

Surgery

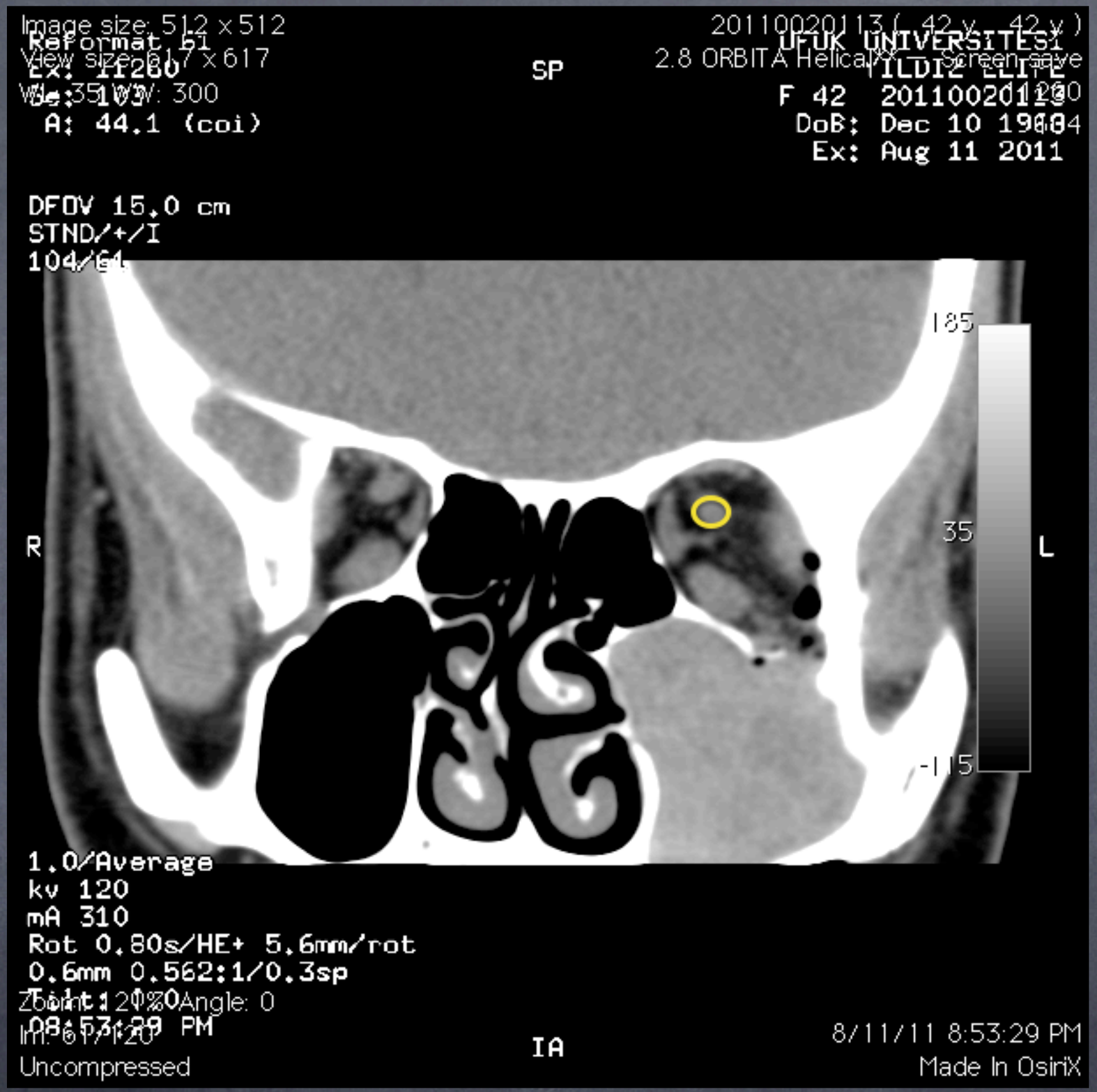
- The surgical resection was performed by transmaxillary approach to the orbit. The gingivobuccal sulcus and inferior turbunate was injected with a 1% solution of lidocaine with a 1:100,000 concentration of epinephrine. The nose was then packed with 1:100,000 adrenaline-soaked cottonid pledgets. After 10 minutes , the gingivobuccal sulcus incision is performed in the mucosa and periosteum 2 to 3 cm lateral to the midline, well above the tooth socket. Sufficient mucosa was preserved inferiorly for closure.

Surgery

- Using a periosteal elevator, the periosteum was elevated upward toward the infraorbital fossa. The infraorbital nevre was identified and carefully preserved. The anterior maxillary wall was identified. Using an osteotome , an opening was made through the canine fossa that was approximately 2x3 cm. Using Kerrison forceps , the opening was enlarged to permit adequate exposure of the maxillary sinus.

Surgery

- The infraorbital groove that contains the infraorbital neurovascular complex was identified and lateral part of the orbital floor and bone carefully removed with a osteotome and Kerrison rongeur under the microscopic vision. Lateral root of approach, which was mentioned before (1), was used. First, the inferior rectus muscle was retracted medially, and intraorbital protruded fatty tissue was removed to identify cavernoma. Cavernoma was removed by using pituitary rongeur.



A postoperative CT scan did not show surgical complications yellow circle; optic nerve

Discussion

- Cavernous haemangioma is the most common primary orbital tumour in adults, accounting for 6% of all orbital lesions.

- The transmaxillary approach to the orbit offers suitable direct access to the inferior orbital region within a short operative time range and without a craniotomy.

- The surgical technique of the transmaxillary approach is anatomically divided into two steps: Caldwell-Luc operation, opening the inferior wall of the eye, and removal of the tumor.

Discussion

- Caldwell-Luc operation is technically simple and safe. The complications of this operation are limited. Rarely, infraorbital nerve and dental injury, recurrent maxillar sinus infections, ecchymosis, and edema of the cheek can be seen.

- The transmaxillary route provides excellent exposure of the optic, oculomotor, ciliary nerves, ciliary ganglion, retinal and ciliary posterior arteries, ocular muscles, orbital fat tissue, and other vital structures.

- So, the incidence of complications related to exposure of these structures may be reduced.

Conclusion

- We recommend the transmaxillary approach to remove orbital tumors as an alternative to the standard techniques of orbital surgery

Thank you