

Transoral Robotic Excision of Parapharyngeal Chordoma A Case Report

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ABSTRACT

OBJECTIVES

To demonstrate that the transoral robotic surgery (TORS) approach is feasible for the excision of parapharyngeal chordomas.

STUDY DESIGN

Case report.

METHODS

A video of the surgery was recorded. The patient's intra-operative and post-operative course were reviewed.

RESULTS

We present a case report of recurrent clival chordoma in the parapharyngeal space resected via TORS. This is a 78 year old man who previously underwent resection of clival chordoma 4 years ago via an expanded endonasal endoscopic approach. He was treated with radiation post-operatively but had a recurrence around the right longus colli muscle. Intra-operatively, the mass was removed en bloc with clear margins. The patient tolerated the procedure well and was discharged on post-operative day one tolerating a full liquid diet. He developed skull base osteomyelitis post-operatively that was treated with intravenous antibiotics.

CONCLUSION

Depending on the location and extent of the tumor, TORS may be a feasible approach for resection of chordomas in the parapharyngeal space. This approach is safe, minimally invasive, has limited morbidity, and has a rapid post-operative recovery.

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INTRODUCTION

CHORDOMAS

Chordomas are rare, malignant, low-grade bone tumors that arise from remnants of the notochord. About 1/3 present at the clivus. The mainstay of treatment is gross total resection followed by radiation. Surgical approach is dependent on tumor location, size, and extent [1].

SURGICAL APPROACHES TO THE PARAPHARYNGEAL SPACE

The parapharyngeal space is bound superiorly by the skull base and inferiorly by the hyoid. It is further divided into the pre-styloid and post-styloid space. Access is often challenging. Good exposure is important as this space contains cranial nerves IX, X, XI, XII, as well as the carotid artery and jugular vein [2].

Surgical approaches to this space are as follows [2,3,4]:

Transcervical. This approach is recommended for access to the inferior parapharyngeal space and post-styloid area. It provides good exposure, allowing visualization of critical neurovasculature.

Transmandible. This approach is typically used as part of a composite resection. It may require a tracheostomy, and is usually associated with a longer hospital stay and significant morbidity.

Transparotid. This approach is ideal for masses in the mid to upper portion of the parapharyngeal space, particularly those adjacent to the facial nerve.

Endonasal. This approach is suitable for tumors in the superior parapharyngeal space, close to skull base. It has low morbidity, shorter hospitalizations and better cosmesis.

Transoral. This approach is used for tumors in the oropharynx, but is discouraged as limited exposure increases the risk of injury to neurovascular structures. Advantages include shorter surgical times and hospital stays, good functional and cosmetic results.

Transoral robotic surgery (TORS). For small, selected tumors, TORS allows for better exposure and greater degrees of freedom for dissection, thereby circumventing some disadvantages of the typical transoral approach.

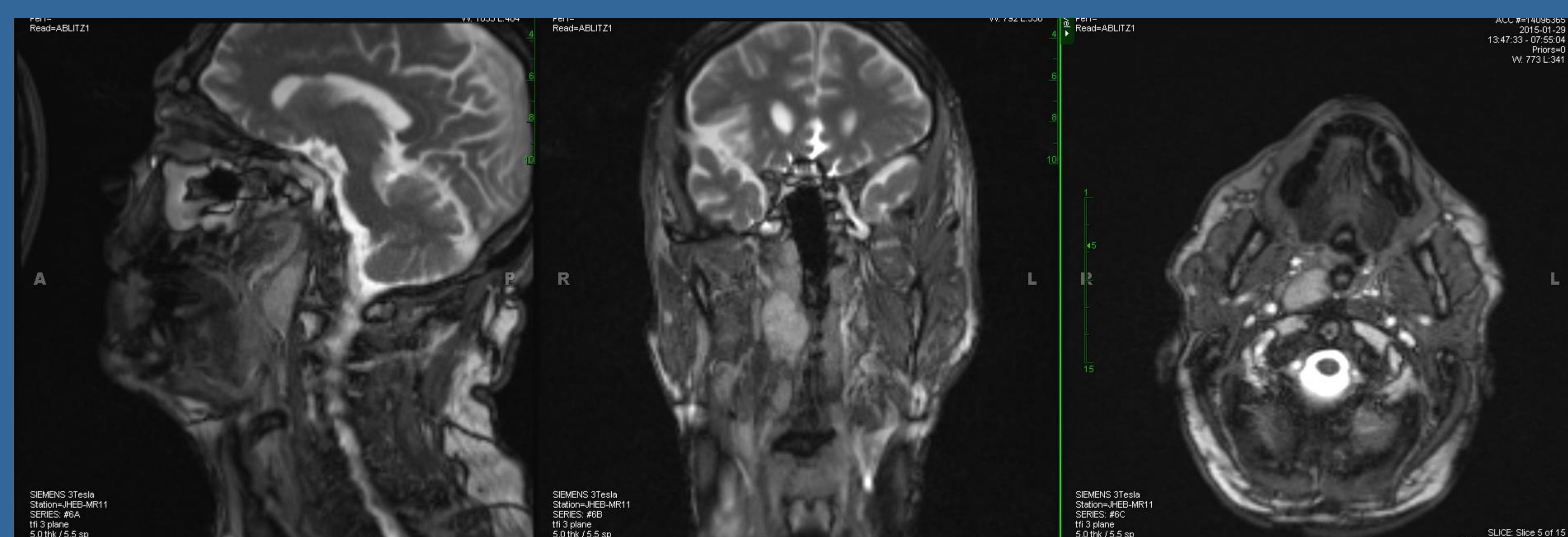


FIGURE 1 MRI demonstrating T2 hyperintense enhancing mass along the anterior aspect of right longus colli muscle

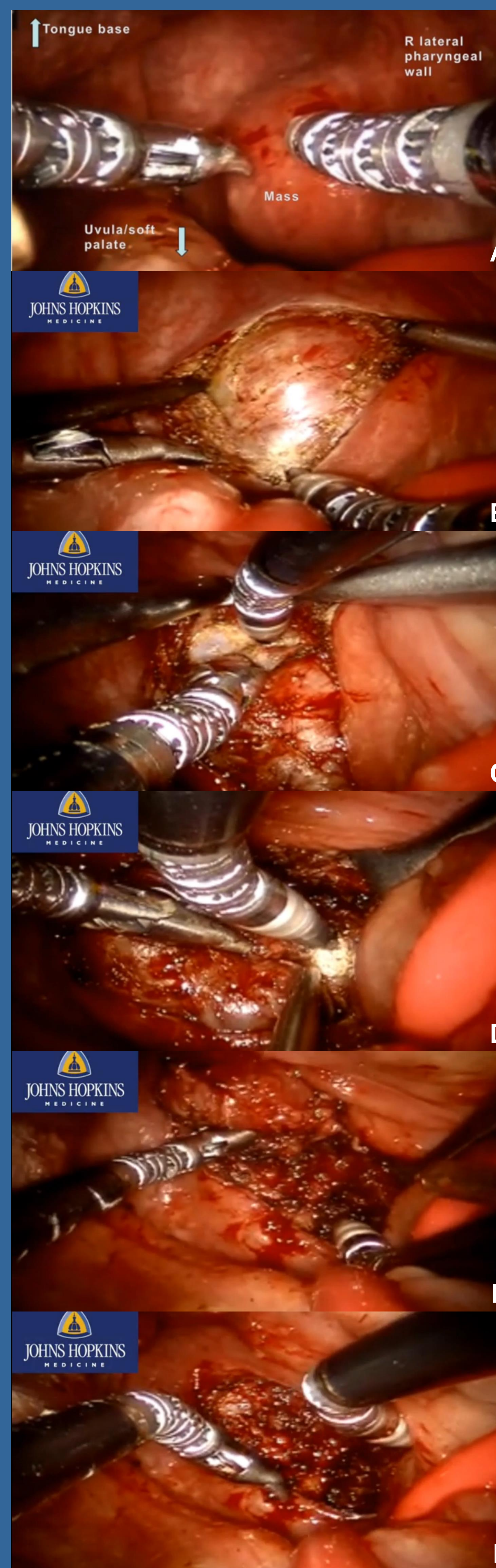


FIGURE 2 Intraoperative photos depicting A: orientation of mass, B: vertical mucosal incision, C: inferior plane and dissection off superior constrictors, D: lateral plane and dissection off medial pterygoids, E: superior plane and dissection off medial pterygoids, F: wound bed.

CASE REPORT

HISTORY & PHYSICAL

A 78 year old man presented 4 years ago with right sided-hearing loss and was found to have a clival chordoma. He underwent resection via an expanded endonasal endoscopic approach followed by proton beam radiotherapy.

He had a recurrence anterior to the right longus colli muscle, which had not been in his radiation field. He developed mild dysarthria, at which point decision was made to proceed with surgical intervention.

On physical exam, the patient had a 2cm, mobile, submucosal mass in the right parapharyngeal space. An open approach was discussed, but may have required an osteotomy for access, as well as a tracheostomy. He was deemed a good candidate for TORS.

SURGICAL TECHNIQUE

The oropharynx was exposed with Crowe-Davis mouth gag, and the palate was retracted with red rubber catheters through the nares. A mucosal incision was made over the mass. Using a 0 degree endoscope, Maryland dissector and Bovie electrocautery on robotic arms, the mass was first dissected medially and inferiorly off the superior constrictors. It was then dissected laterally and superiorly off the medial pterygoids. There was a clean plane around the mass throughout. Margins were sent. The incision was then closed primarily.

The mass measured 3.0 x 2.3 x 1.7 cm and was removed *en bloc*. Blood loss was minimal. Pathology confirmed a chordoma with clear margins.

POST-OPERATIVE COURSE

The patient was discharged the next day tolerating a full liquid diet, and then advanced to a soft diet. His post-operative course was complicated by skull base osteomyelitis. He was treated with intravenous antibiotics for 6 weeks with normalization of his inflammatory markers and improvement on CT imaging.

DISCUSSION

Depending on the location and extent of the tumor, TORS may be a feasible approach to resection of recurrent clival chordoma in the parapharyngeal space. This approach is safe, minimally invasive, has limited morbidity, and has a rapid post-operative recovery.

REFERENCES

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