



CODEN [USA]: IAJPBB

ISSN: 2349-7750

**INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES**<http://doi.org/10.5281/zenodo.1402928>Available online at: <http://www.iajps.com>

Research Article

**THE CASE OF INVERTED PAPILOMA INVOLVING BASE OF
SKULL****Dr. Tanvir Hussain, Dr. Talal Alandejani, Dr. Dakheelallah Almutairi,
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Abstract:

Skull base inverted papilloma (IP) is a rare case of Sino nasal tumor. The complex anatomy of the facial and bones of the skull as well as clinical presentations of the malignancy makes diagnosis of the condition difficult. However, the tumor has high potency for recurring in addition to malignant degeneration. In a case study of a 59-year old male, medical investigations involving nasal endoscopy examination, magnetic resonance imaging (MRI) and computed tomography (CT) scans are important in identifying the TUMORS of skull base inverted papilloma. Certainly, signs and symptoms of skull base IP are nasal obstructions, headache, low vision, epistaxis, loss of smell and sinusitis. The modern medical imaging has initiated the development of efficiency and safety choice of surgical approaches in the treatment of skull base IP. Evidently, NASAL endoscopic surgery involving resection of the Sino nasal tumors have been considered gold standards in the treatment of skull base IP. The approach is less invasive as it does not involve incision of the skull and facial bones. Besides, endoscopy techniques are associated with less pain, reduced tumor manipulation, fewer rates of recurrence and improved cosmetic outcomes. However, the effectiveness of the technique is ascertained in patient follow-ups between 1 and 11 months.

Key Words: *inverted papilloma, sinus surgery, skull base, endoscopy, sinonasal tumors.*

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Please cite this article in press Tanvir Hussain *et al.*, *The Case of Inverted Papilloma Involving Base of Skull.*, *Indo Am. J. P. Sci.*, 2018; 05(08).

INTRODUCTION:

Skull base inverted papilloma (IP) is a benign neoplasm of the epithelium that can proliferate in the nasal cavity and sinuses. IP is of considerable interest to neurosurgeon due to its propensity to recur, cause of local aggression and associated malignancy (Wassef et al., 2012). About 5% of IP cases confirm exclusive sinus involvement while primary sphenoid sinus is uncommon (Carroll et al., 2016). However, the tumor is considered benign and has a considerable invasive nature with associated malignancy rate between 7% and 15%. Essentially, sinonasal papilloma is unilateral and is considered to originate from the broad or narrow-based stalk (McCollister et al., 2015). The most common clinical presentation of inverted papilloma is unilateral nasal obstruction though other symptoms can be present depending on the site of tumor involvement.

Skull base IP is an uncommon benign tumor of the nasal fossa, hence pose surgical dilemma due to complication of surgical removal of the bony pedicle as well as the need to decrease the recurrence risk (Dmytriw, Witterick & Yu, 2013). In essence, a complex anatomy cause difficulty in surgical access, thus, presents therapeutic challenges involving surgery. However, nasal endoscopic techniques as a surgical therapy improve the understanding of the pathophysiology of skull base IP, hence, prove surgery as the mainstay therapy (Budu, Schnaider & Bulescu, 2015). Hence, in this study nasal endoscopy

sinuses surgery was used as surgical therapy for demonstrated skull base IP with wide skull base spread. It will focus on a case study attending to an outpatient clinic in King Abdul Aziz Medical City in Jeddah.

CASE REPORT:

The present case study involves a 59-year old male attending Ear Nose and Throat (ENT) clinic at the Out Patient Department (OPD) in King Abdul Aziz Medical City in Jeddah. The patient complains of bilateral nasal obstruction, headache, off and on episode of mild epistax. Besides, the patient states loss of smell and there is mild protrusion of the right eyeball. Past medical history reveals a two nasal surgery at a different hospital. The biopsy that was done at the OPD of the hospital reveal inverted papilloma. The anterior view of head magnetic resonance image (MRI) reveals an extensive tumor in the nasal cavity extending to the base of the skull as well as nasal cavity as shown in the scan below. Nasal endoscopy examination at the ENT OPD of the hospital revealed a polypoidal mass occupying right nasal cavity and sphenoid sinuses with unequivocal evidence of the base skull involvement. Sinus computed tomography that was done reveals a soft tissue mass filling the sphenoid sinus and this extends to the posterior sphenoid with apparent bony integrity (Prasad et al., 2016).



Fig 1: CT scan Nose and PNS Coronal View



Fig 2: Nose and PNS Axial View



Fig 3: Removed tissue for histopathology

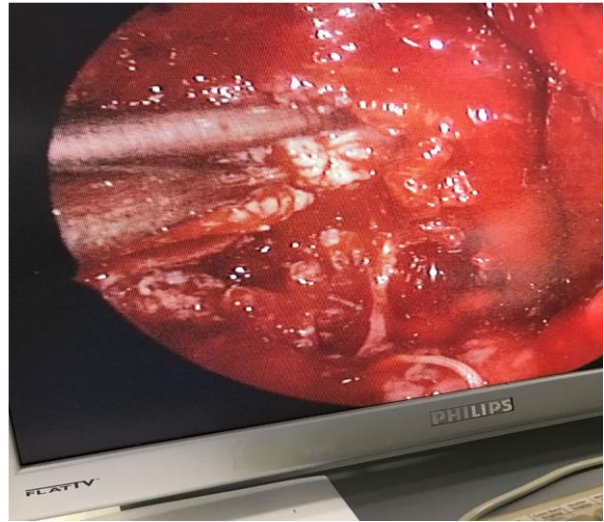


Fig 4: Near Carotid

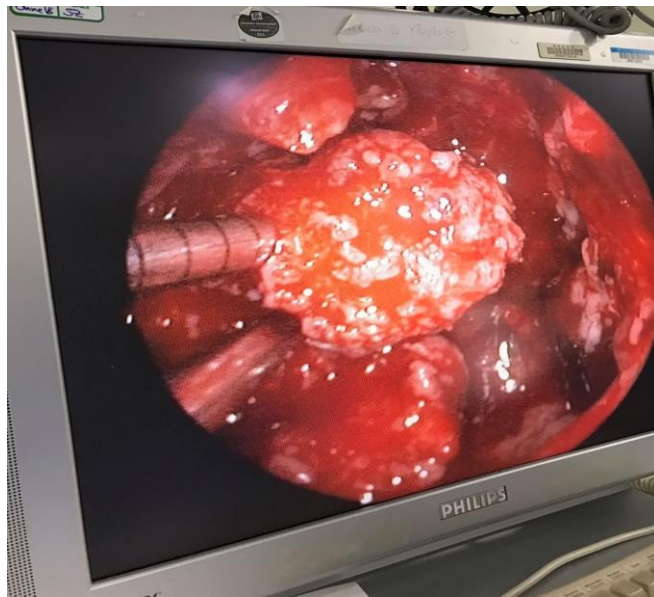


Fig 5: opticocarotid recess

The patient underwent debriement of nasal mass with nasal endoscopic shaver, sphenoidotomy through an endoscopic by means of 0 and 70 degrees' endoscope. A bleeding polypoidal papillomata's lesion was observed inside the sphenoid sinus. RT SPHENOPALATINE ARTERY ligation was done, the Sino NASAL tumors were resected by means of endoscopic shaver and with de-epithelialization (Adriaensen *et al.*, 2015). The technique was done without making incisions to the facial bones or the skull. The patient did well postoperatively and upon investigations through nasofibroscope examination

that yielded positive results, the patient was discharged the next day (Wassef *et al.*, 2012). The patient was booked for outpatient visits after one week and then 2 months though was informed to report any unwanted symptoms promptly. Upon review and nasofibroscope examination, in the head and neck outpatient clinic after 60 days of the surgery, no recurrent signs were identified. However, follow-ups were scheduled within twelve months of surgery as the skull base IP have a tendency of recurrence between 1 and 11 months (Dmytriw, Witterick & Yu, 2013).

DISCUSSION:

Papilloma has the ability to invade into the adjacent structures of the skull including the orbit and the central nervous system (CNS). Essentially, IP accounts for 0.5% to 4% of all the nasal tumors. The malignancy of the tumor has a characteristic endophytic growth pattern as evidenced by Schneiderian membrane, inverting its form into the underlying stroma (Grayson et al., 2016). Intrinsically, skull base inverted papilloma is potentially invasive with about 70% of systematically reviewed cases revealing evidence of bony erosion on computed tomography (CT) scan. Besides, skull base IP has high rates of recurrence ranging from 20% to 47% (Wassef et al., 2012).

According to Kuan et al. (2017), skull base IP often manifest as unilateral polyps with the prominent sign of unilateral nasal obstruction. However, bleeding or sinusitis can as well denote a sign of inverted papilloma. Certainly, revealing signs of epistaxis and persistent nasal discharge in patients above 40 years confirms presence of paranasal sinus tumors at diagnosis. Besides, nasal obstruction, epistaxis, rhinorrhea or sinusitis can raise concern of possible neoplastic process at diagnosis (Prasad et al., 2016). Evidently, headache and nasal obstruction are the most common signs in the case of skull base inverted papilloma emanating from sphenoid sinus. Essentially, patients with malignant transformation have common signs of nasal obstruction, facial or dental pain (McCollister et al., 2015). Conversely, clinical presentation of skull base inverted papilloma that is confined to the sphenoid sinus tends to be insidious and nonspecific with a revealed sign of headache as the most common presentation. The less common signs for patients with malignancy formation are facial edema, rhinorrhea, cranial neuropathy, headache, hyposmia and vision loss.

Wassef et al. (2012) denote that traditional approaches in therapy involving surgical removal through external and nasal endoscopy sinuses surgery approaches remain a method of choice. Endoscopic techniques provide an understanding of the pathophysiology of IP, hence have been used to treat the condition (Adriaensen et al., 2015). The approach has a recurrence rate of 5% to 10% and this is considered to be very low. Intrinsically, the endoscopy therapy can be done in Krouse' staging system identified as I, II and III depending on the extent and location of the tumor. Therapies in all the cases are effected by the conservative treatment involving endoscopic endonasal surgery. In Krouse Stage I, identified by tumors confined within the nasal cavity, endoscopic resection of the tumor confirms the effectiveness in treatment (Suh et al., 2015). For the case of Krouse Stage II where tumor affects the ethmoid sinuses,

ethmoidectomy and endoscopic resection of the tumor are considered effective. However, in Stage III tumors, endoscopic maxillectomy in addition to anterior and/or posterior ethmoidectomy are the most frequent therapeutic approaches (Grayson et al., 2016). The external approach provides therapies for tumors extending in the orbit, maxillary sinus, and the brain. This confirms endoscopic approaches as the favorite standards for the treatment of all the stages of inverted papilloma including the skull base IP (Wassef et al., 2012). The approach to treatment is effective in managing disease recurrence as well as associated comorbidities as compared to previous therapeutic methods. Compared to other therapies, nasal endoscopy techniques improve the field of view of the surgical area, hence are linked to precision in surgical procedures. This leads to reduced amount of postoperative bleeding and associated pain (Carroll et al., 2016). Besides, the use of the technique is recommended it decrease nasal scraping, lesser resection of viable tissue and better cosmetic outcomes. However, endoscopy therapies are contraindicated in cases of presence of squamous cell carcinoma as well as cases of intradural or orbital extension (McCollister et al., 2015).

CONCLUSION:

Skull base inverted papilloma presents a diagnostic and therapeutic challenge to surgeons. Essentially, medical investigations such as endoscopy examination, CT scan and MRI are important in identifying characteristics of the tumor (Kuan et al., 2017). Nasal endoscopic sinuses surgery has been the standard treatment choice for the skull base inverted papilloma (Budu, Schnaider & Bulescu, 2015). The approach has fewer rates of recurrence, less pain, and more improved cosmetic outcomes. However, reviews through patient follow-ups are crucial to detect malignancy transformation and the possible recurrence of inverted papilloma.

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