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Shoulder Metastasis: A Rare Nasopharyngeal Carcinoma Presentation

Authors' Contribution:
Study Design A
Data Collection B
Statistical Analysis C
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Manuscript Preparation E
Literature Search F
Funds Collection G

AEF 1,2 Ameen Z. Alherabi
A 3 Rehab F. Simsim
ABE 1 Suha H. Alsayed
BE 4 Ahmad S. Alharthi
BCD 1,2 Osama Marglani

1 Department of Otolaryngology (ENT) – Head & Neck Surgery, Umm Al-Qura University, Mecca, Saudi Arabia
2 Department of Otolaryngology (ENT) – Head & Neck Surgery, King Faisal Specialist Hospital & Research Centre, Jeddah, Saudi Arabia
3 Department of Otolaryngology (ENT) – Head & Neck Surgery, Princess Nourah Bint Abdul Rahman University, Riyadh, Saudi Arabia
4 Department of Otolaryngology (ENT) – Head & Neck Surgery, Al Hada Armed Forces Hospital, Taif, Saudi Arabia

Corresponding Author: Ameen Z. Alherabi, e-mail: azherabi@uqu.edu.sa
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Patient: Male, 23-year-old
Final Diagnosis: Squamous cell carcinoma
Symptoms: Right shoulder pain
Medication: —
Clinical Procedure: —
Specialty: Otolaryngology

Objective: Rare coexistence of disease or pathology

Background: Nasopharyngeal carcinoma (NPC) is a rare malignant tumor that arises from the mucosal lining epithelium of the nasopharynx, most commonly at the lateral nasopharyngeal recess or fossa of Rosenmüller. According to global age-standardized incidence rates (ASIRs), in 2018 the incidence rate of nasopharyngeal carcinoma varied from 2.1 to 0.4 per 100 000 in Asia and Europe, respectively. The number of deaths exceeded 50 000. It is one of the few head and neck tumors prone to distant metastasis, most commonly to bones, lung, and liver.

Case Report: In this case report, we present a rare case in which a 23-year-old male patient presented to our head and neck clinic. The patient presented initially to the orthopedic clinic with a right humeral mass lesion 10 cm with history of pain for the last 7 months. A Tru-Cut biopsy confirmed metastatic NPC. A nasopharyngeal biopsy further revealed his lesion to be an NPC undifferentiated type III. The patient was diagnosed with a T_3 N_{2b} M_1 stage tumor and he was treated with chemoradiotherapy.

Conclusions: NPCs that present with a shoulder/humoral metastasis are very rare clinically. We are presenting this case to increase the awareness of the Otolaryngology – Head & Neck surgery, Orthopedic, and Oncology community of such a rare presentation.

Keywords: Nasopharyngeal Carcinoma • Shoulder

Full-text PDF: https://www.amjcaserep.com/abstract/index/idArt/938123

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Background

Nasopharyngeal cancer (NPC) is a malignancy originating from the mucosa of the nasopharynx commonly at the lateral nasopharyngeal recess or Rosenmüller fossa [1]. NPC highest prevalence is in Southeast Asia, Southern China, the Middle East, and Alaska [2]. According to global age-standardized incidence rates (ASIRs), in 2018 the incidence rate of nasopharyngeal carcinoma varied from 2.1 to 0.4 per 100 000 in Asia and Europe, respectively, and the number of deaths exceed 50000 [3]. It is one of the few head and neck tumors prone to distant metastasis, most commonly to bones, lung, and liver [4]. Males are at 2-3 times higher risk than females [2], with peak incidence at the fifth decade of life, which might suggest exposure to a carcinogenic agent or Epstein-Barr virus (EBV) in early life [5].

The epidemiological finding in Saudi Arabia were similar to worldwide data, with peak incidence among people 45-55 years old, with a smaller peak in the 20-24 age group. Most patients present with advanced stage, with a high incidence of non-keratinizing squamous cell carcinoma [6].

Among all the head and neck cancers diagnosed annually in Saudi Arabia, NPC represent 33%, with an incidence of 0.25 per 10 000 for males and 0.08 per 10 000 for females [7]. NPC has multiple risk factors and associations, which include EBV, salted fish and other foods, tobacco, alcohol, and herbal medicines [5].

In this case report, we present a rare presentation of shoulder distant metastasis that turned to be of NPC origin, with the aim to increase the awareness of the head & neck, oncology, and orthopedic community of such a rare presentation.

Figure 1. Clinical photo of the swollen right shoulder.

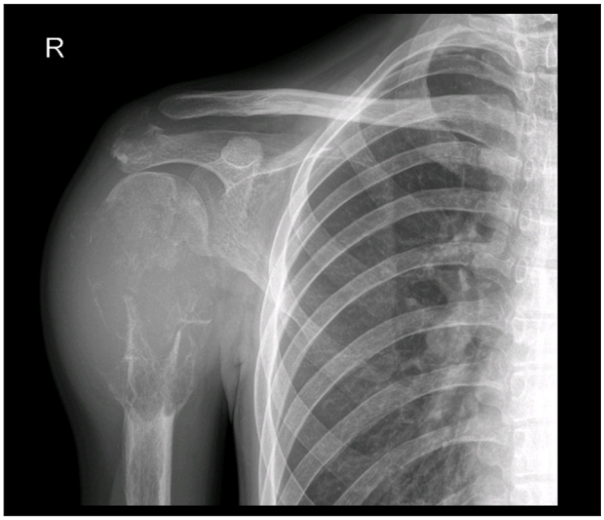

Figure 2. A plain chest X-ray image showing soft-tissue swelling of the right shoulder.

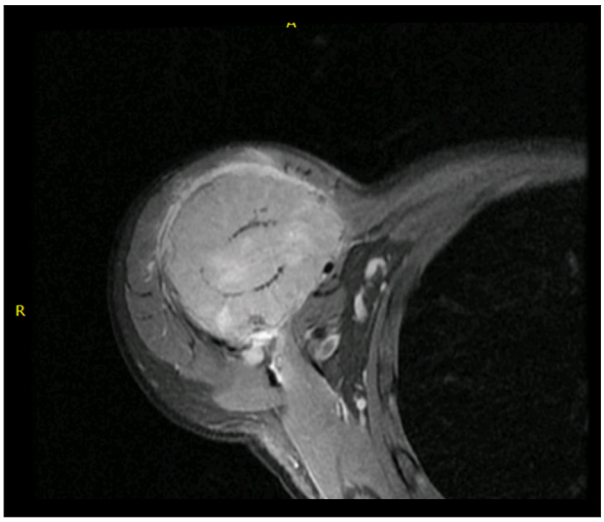

Figure 3. Magnetic resonance imaging of the shoulder shows a soft-tissue lesion, which is iso-intense relative to the muscle and shows enhancement in the right humoral head; the lesion extends to the right glenu-humoral head.

Case report

A 23-year-old man was referred to our ENT-Head and Neck clinic from the Orthopedic clinic. He initially presented with a right humeral lesion around 10 cm in size (**Figure 1**). An X-ray image confirmed a proximal right humeral osseous lesion with a pathological fracture (**Figure 2**). His shoulder MRI scan showed an aggressive lytic lesion involving the right humerus (**Figure 3**).

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Figure 4. A computed topography image with a contrast axial view shows a large RT nasopharyngeal mass extending to the RT pterygoid muscle with erosion in the medial pterygoid process. The lesion further extends to the prevertebral space posteriorly (arrow).

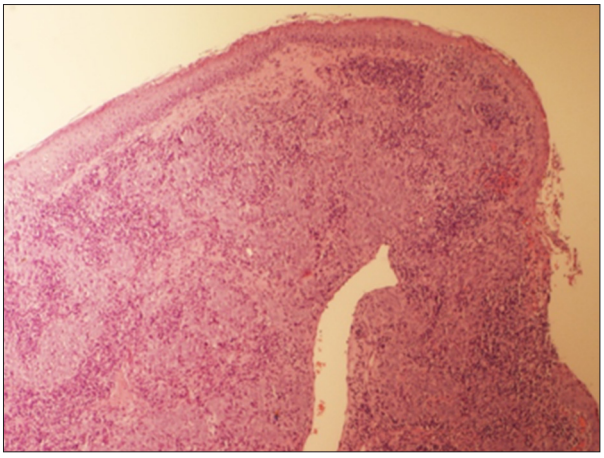

Figure 5. Low-power magnification (3×) of a hematoxylin and eosin stain shows a growing mass under the epithelial lining.

His head and neck examination revealed a nasopharyngeal mass with bilateral palpable cervical lymph nodes. A head and neck CT scan confirmed a large nasopharyngeal mass (**Figure 4**). A Tru-Cut biopsy demonstrated that the lesion was a malignant metastatic nasopharyngeal carcinoma (NPC) (**Figure 5**). A nasopharyngeal biopsy further revealed his lesion to be an NPC undifferentiated type III (**Figure 6**). The case was discussed in the tumor board. The patient was diagnosed with a T_3 N_{2b} M_1 stage tumor and chemotherapy was planned. The patient was referred to the Oncology Department for treatment. He received

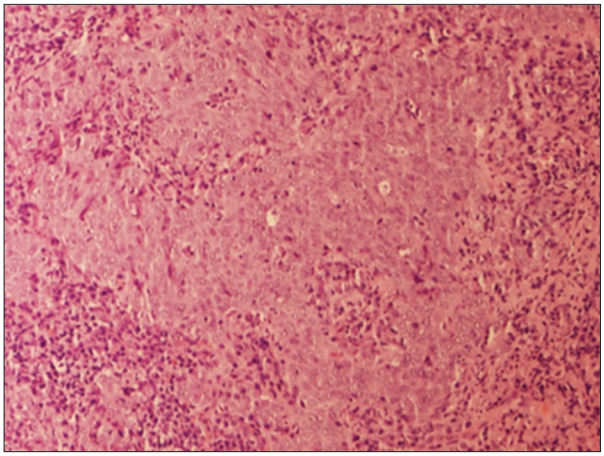

Figure 6. High-power magnification of hematoxylin and eosin stain reveals a sheet of cells with pleomorphism, a high nuclear-to-cytoplasmic ratio, and prominent nucleoli.

chemotherapy with gemcitabine and cisplatin, but he did not compete treatment and was lost to follow-up.

Discussion

Shoulder and humeral metastases from NPCs are rare. NPCs usually present as neck masses and are typically accompanied by hearing loss, otitis media, nasal obstruction, nasal bleeding, and cranial nerve palsies [6[. Our patient presented with a skeletal concern (a shoulder/humeral lesion), so his initial workup was carried out by an orthopedic surgeon. He was then referred to the otolaryngology division after his biopsy results to focus on his major symptoms, which included nasal obstruction and palpable neck lymph nodes. It is important to keep in mind the uncommon and late presentations of NPC in younger patients.

There is a previous case report [5] of an NPC that metastasized to the cervical spine presented with right upper-limb weakness, with no history of trauma. On examination she had a mass at the right posterior triangle of the neck. Fiberoptic nasopharyngoscopy examination revealed fullness at the right fossa of Rosenmüller. A biopsy and histopathological examination revealed an undifferentiated non-keratinizing nasopharyngeal carcinoma. A few studies from Saudi Arabia have confirmed this late presentation, including Alherabi [5] and Zakaria et al [6] in 77% and 81% of cases, respectively, as stage III and IV presentation in their series [5-8].

We could not identify any published case that reported an NPC that presented with a shoulder metastasis. At time of diagnosis, 5-8% of cases present with distant metastasis; the commonest of which is bony metastasis (70-80%). Survival

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outcomes in these patients are often poor [9]. NPCs are radiosensitive tumors; thus, radiotherapy is the mainstay of treatment. With advanced stage NPCs, the standard course is to use radiotherapy with adjuvant chemotherapy. A meta-analysis and many prospective randomized studies have demonstrated that this combination therapy decreases mortality by 18% and an improves the 5-year survival rate by 4-6% [5,8]. Any patient who presents with bony metastasis is considered to be in the advanced stage and palliative care is the main treatment option. It has further been established that younger patients have better response than older patients [6-9]. According to ESMO-EURACAN Clinical Practice Guidelines, palliative chemotherapy should be considered for patients with metastasis of NPC and those have an adequate performance status. The first-line treatment improve overall survival is a combination of cisplatin and gemcitabine, and in patients with newly diagnosed metastatic NPC, locoregional radiotherapy combined with systemic therapy can improve locoregional control and overall survival [10].

One of the major causes of treatment failure and death in nasopharyngeal carcinoma is the propensity of NPC to develop distant metastases [11], with only 60% of patients completing the planned treatment cycles [12].

Conclusions

NPCs that present with a shoulder/humoral metastasis are very rare clinically. This report was written to improve the clinical suspicion of the ENT, Otolaryngology, Orthopedic, and Oncology communities to the existence and symptoms of such rare presentations.

Declaration of Figures' Authenticity

All figures submitted have been created by the authors who confirm that the images are original with no duplication and have not been previously published in whole or in part.

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