Journal Homepage: -www.journalijar.com

INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI:10.21474/IJAR01/17459
DOI URL: http://dx.doi.org/10.21474/IJAR01/17459

RESEARCH ARTICLE

ATYPICAL GLOMUS TUMOR ON THE RADIAL SIDE OF THE WRIST, CASE REPORT

Ali H. Al Trabolsi and Abdulhamid Alyousfi

Manuscript Info

Manuscript History
Received: 27 June 2023
Final Accepted: 31 July 2023
Published: August 2023

Key words:-
Glomus Tumor, Wrist, Radial Side, Resonance Imaging

Abstract

Atypical glomus tumors are neuromyoarterial glomus body neoplasms that most commonly occur in the subungual areas of the hand. These tumors typically present as painful solitary lesions with localized tenderness. Atypical glomus tumors are rare and difficult to diagnose because of their varying symptoms and presentation. Misdiagnosis can result in significant chronic pain, disuse syndromes, and disability over prolonged periods. Timely diagnosis and surgical resection are generally curative with complete resolution of symptoms. aware should be considered it in the differential diagnosis when treating a painful soft-tissue mass of the radial side of the wrist. We report a case of atypical glomus tumor that occurred on the volar-radial aspect of the wrist. The patient was successfully treated with complete surgical excision of the tumor. There were no symptoms or recurrence after follow-up.

Introduction:-

The main function of the glomus body, an apparatus located in the skin at the junction of the arteries and veins, is to regulate body temperature. Glomus tumors are rare benign neoplsms arising from neuromyoarterial glomus bodies[1]. Most occur in a distal phalanx, often subungally, but they may be found anywhere throughout the body[2]. The tumors in unusual locations-extradigital glomus tumors-are extremely rare and difficult to accurately diagnose before surgery. Glomus tumors are considering uncommon mesenchymal neoplasms involving specialized arteriovenous shunts (glomus), which have a rich nerve supply and are related to control of blood flow and thermal regulation. They are more often solitary, small, and benign, and predominantly affect middle-aged woman[3].

The classical location of glomus tumors is on the skin, more frequently of distal portions of fingers and toes, and at nail beds. The most characteristic feature of glomus tumor is intense local pain, which appears either spontaneously or following direct compression and exposition to cold environments[4]. Typical pain is circumscribed to the tumor area, but proximal irradiation may occur. The vast majority of glomus tumors are found on the extremities, and the lesion commonly develops appearing like a little purple spot, which can be observed through the nail plate[5].

Glomus tumors represent hyperplastic glomus bodies and make up 1% to 4.5% of upper extremity neoplasms, with approximately 75% in the hand and 50% in the subungual area[6]. These tumors can also present in multiple locations at once and can occur in atypical and ectopic locations. Although generally benign, glomus tumors can also exhibit malignant and metastatic potential in rare cases[7]. In this article, we report a case of atypical glomus tumor that occurred on the radial side of the wrist. This tumor was successfully treated with surgical excision.

Corresponding Author:- Ali H. Al Trabolsi

Case Report

35-year-old Female has the date of birth 28 Mar 1988 presented to our hospital. The chief complaint of patient is soft tissue mass left wrist has a 5-year history of soft mass over left wrist with increasing in size with time, painful sometimes and no trauma but the pain coming again when review results of Ultrasound (US) left wrist is a solid mass and nerve sheath tumor. physical examination of the patient indicates to left wrist, soft tissue over radial side, firm tender to touch and electric shock with touch normal sensation istal to the mass.The patient hasn't known drug allergy.

The ultrasound examination for the patient showed solid soft tissue mass. The diagnostic information for the patient case is soft tissue mass left dorsal of distal left forearm, The clinical diagnostic: swelling at dorsal of distal left forearm. The finding of the US examination: a well- defined hypoechoic oval shaped encapsulated mass lesion with vascularity on doppler assessment seen in subcutaneous locations with no evidence of deep extension. The lesion measured 12x4 mm in dimensions with no intralesional calcification figure (1). No detected encysted collection or regional lymphadenopathy. Finally, the subcutaneous solid soft tissue mass as described.

MRI examination for the patient reported as Wrist Ganglion Cysts an MRIexamination was done for further investigation of the left wrist and the report revealed a small subcutaneous benign volar cystic lesion abutting the skin surface without obvious deep communication extension. As described these findings are likely related to underlying sebaceous cysts or isolated benign Wrist ganglion cyst formation. (Figure 2,3) Complete surgical excision of the cyst was done using a volar wrist approach and the specimen was sent for histopathology.

Fig 1:- Ultrasound of radial side of left wrist: subcutaneous solid soft tissue mass.

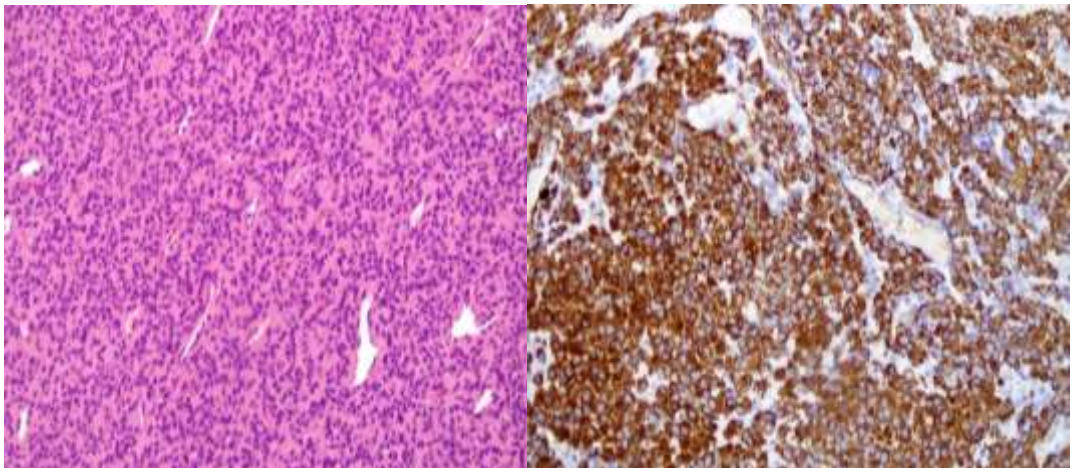
Fig. 2:- Coronal MRI shows heterogeneous subcutaneous mass.

Figure 3:- Axial (MRI) shows heterogeneous subcutaneous mass.

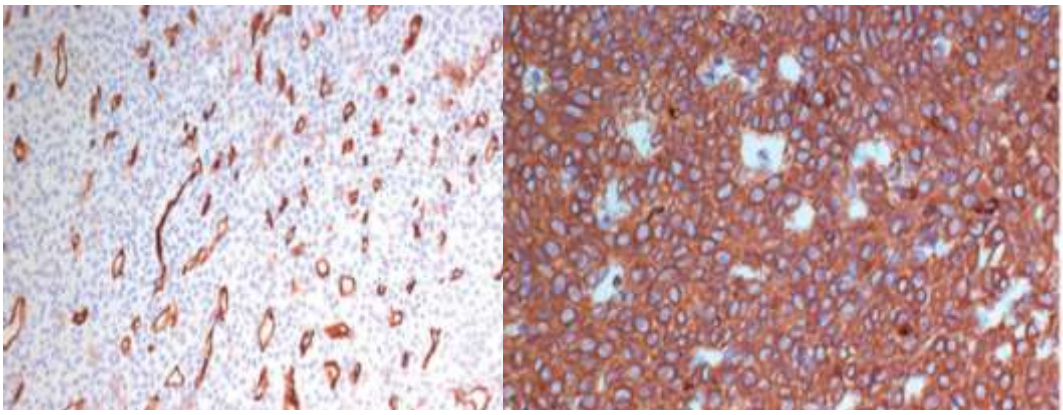
Histopathological assessment, the Result of the biopsy taken after the surgery from the patient. The biopsy examination showed a soft tissue mass radial left wrist, where the natural of specimen is soft tissue mass left wrist. The gross description as the following the Specimen receive in 10% neutral buffered formalin, nature specified on the container as soft tissue mass left wrist, consisted of 2 irregular pieces of yellowish tan fatty tissue. The large tissue measured 1.8X1.5X0.4 cm. serial cut section in the large tissue showed yellow fatty homogenous tissue surface. The small tissue measured 0. 5x0.x0.2cm. All submitted in 3 cassettes A+B from the large tissue, C from the small tissue. The microscopic description reveals small circumscribed nodule components glomus cells small capillary and smooth muscle cell proliferation without atypia. The immunohistochemistry of specimen the results showed figure (4).

- SMA, Vimentine, HMW-CK, CD 138, Positive
- CD31, CD34, CD45, CD3, CD79A, CD163 within reference range
- HHV-8, ALK-1, WT-1, HMB45, Synaptophysin, Desmin: negative
- Calretinin: Inconclusive

The final diagnosis of biopsy after examination is soft tissue mass radial side left wrist swelling, benign glomus tumor, category benign primary site and the state of excision complete.



2H&E smooth muscle actin IHC



CD 34 Vimentine positive

Figure 4:- The histologic examination showing a well circumscribed tumor located in the subcutis.

Discussions:-

Glomus tumors are benign hamartomatous growths of neuromyoarterial glomus bodies. Glomus bodies are present in the stratum reticularis of the dermis throughout the body, but they are highly concentrated in the digits, palms, and soles of the feet. Glomus tumors are composed of an afferent arteriole, arteriovenous complex, and efferent venules[8]. Histologic examination reveals branching vascular channels separated by connective tissue stroma containing aggregates, nests, and masses of specialized glomus cells that have electron microscopic features of smooth-muscle cells. Patient went to two different orthopedic doctors. While other orthopedic doing aspiration without doing Ultrasound[9].

A typical glomus tumor of the hand is readily diagnosed with clinical and radiologic findings. Most of the tumors in the subungual locations present the classic symptom triad of pain, pinpoint tenderness, and hypersensitivity to a cold. Ultrasonography and MRI have been used to localize and characterize the tumors. As a first line method, ultrasonography is helpful to detect the lesion, despite its low specificity and tumor presentation as a well-defined hypoechoic mass[11]. MRI has proven to be the most sensitive imaging modality for the diagnosis of glomus tumors and was most successful when a radiographic marker was placed directly over the exact point where the patient experienced pain. MRI also gives more details of the lesion and its relationship to adjacent structures, which facilitated complete removal by excision. The typical appearance of glomus tumors on MRI is a circumscribed mass of intermediate or low signal on T1-weighted images and high signal on T2-weighted images, with diffuse enhancement after gadolinium administration[12]. The diagnosis of atypical glomus tumors remains a challenge. Their unusual location and nonspecific clinical findings, except for pain, make the diagnosis difficult. Therefore, history, clinical examination and proper radiologic examination are essential[13].

In this case, the patient presented specific pain and the lesion was palpable superficially on physical examination. Therefore, clinicians could suspect glomus tumors. For further evaluation and differential diagnosis of the lesion, MRI was performed with the radiologic marker on the painful site. The lesion showed typical MRI findings of the glomus tumor with characteristic signal changes and enhancement pattern. The broad differential diagnosis includes a neural tumor such as a neurofibroma, vascular tumor including hemangioma, angioma, or hemangiopericytoma, as well as a leiomyoma or metastasis[14.] A glomus tumor should be considered in the differential diagnosis of any painful soft tissue mass. Finally, a histologically proven atypical glomus tumor in the upper arm. Presurgical MRI and ultrasound depicted lesion characteristics and location. Radiologists should be aware of the existence of these lesions, particularly in the setting of chronic pain and focal tenderness. This rare differential should be considered, despite its unusual location[15].

Conclusion:-

Overall, glomus tumors are rare and challenging to diagnosisand should be in the differential in any symptomatic patientwith a painful soft-tissue mass of the wrist. Advanced imagingstudies, such as MRI, can assist in localization, diagnosis, andpreoperative planning. Histology and immunohistochemistryare essential to differentiate glomus tumor from other vasculartumors, and complete excision is necessary to prevent localrecurrence.

References:-

1. Becce F, Richarme D, Letovanec I, Gilgien W, Theumann N. Percutaneous radiofrequency ablation of primary intraosseous spinal glomus tumor. Skeletal radiology. 2012 Apr; 41:467-72.
2. Lee JA, Lee S, Joo KB, Ryu JA, Lee BK, Park CK. An Extradigital Glomus Tumor in the Upper Arm: A Case Report. Journal of the Korean Society of Radiology. 2011 Oct 1; 65(4):421-4.
3. Mazhar FN, Shoushtarizadeh T, Mirzaei A. Intravascular glomus tumor of the wrist causing chronic wrist pain. Journal of Hand and Microsurgery. 2018 Aug; 10(02):113-5.
4. The most characteristic feature of glomus tumor is intense local pain, which appears either spontaneously or following direct compression and exposition to cold environments.
5. Cohen PR. Glomus Extradigital Tumor: A Case Report of an Extradigital Glomus Tumor on the Wrist and Comprehensive Review of Glomus Tumors. Cureus. 2023 May 8; 15(5).
6. Pertea M, Grosu OM, Filip A, Moraru DC, Luca S, Fotea MC, Lunca S, Olinici D, Poroch V, Carp C, Veliceasa B. Rare Benign Tumors and Tumor-like Lesions of the Hand without Skin DamageClinical, Imagistic and Histopathological Diagnosis, Retrospective Study. Diagnostics. 2023 Mar 22; 13(6):1204.
7. Li LY, Zhao HY, Tong HC, Li YC, Xu HT, Ma S, Yang LH, Zhang WL, and Wildes T, Wang E. Atypical thymic carcinoid tumor with ectopic ACTH syndrome in a 33-year-old male patient: A rare case report and literature review. Medicine. 2023 Jun 6; 102(22).
8. Afroozi B, Rezazadeh F, Jaafari-Ashkavandi Z, Tavanafar S. Glomus tumor in the buccal mucosa: A case report and review of the literature. Journal of Oral and Maxillofacial Pathology: JOMFP. 2023 Feb; 27(Suppl 1):S15.
9. Whisler J, Shahreza S, Schlegelmilch K, Ege N, Javanmardi Y, Malandrino A, Agrawal A, Fantin A, Serwinski B, Azizgolshani H, Park C. Emergent mechanical control of vascular morphogenesis. Science Advances. 2023 Aug 11;9(32):eadg9781.
10. Morey VM, Garg B, Kotwal PP. Glomus tumours of the hand: review of literature. Journal of clinical orthopaedics and trauma. 2016 Oct 1;7(4):286-91.
11. Kim HW, Yoo SY, Oh S, Jeon TY, Kim JH. Ultrasonography of pediatric superficial soft tissue tumors and tumor-like lesions. Korean Journal of Radiology. 2020 Mar 1;21(3):341-55.
12. Glazebrook KN, Laundre BJ, Schiefer TK, Inwards CY. Imaging features of glomus tumors. Skeletal radiology. 2011 Jul; 40:855-62.
13. Vieira L, Pereira P, Nunes B, Matos R, Sousa A, da Silva MR. Glomus Tumor:“A-Not-So-Rare” Cause of Chronic Shoulder Pain—A Case Report and Literature Review. Case Reports in Orthopedics. 2021 May 27; 2021:1-7.
14. Liu T, Narra KK, Stephenson PD, Grossmann AH, Downs-Kelly E, Albertson D. Pathology of soft-tissue tumors. Sarcoma Oncology: A Multidisciplinary Approach. 2019 May 15:15.
15. Burke CJ, Fritz J, Samim M. Musculoskeletal Soft-tissue Masses: MR imaging–Ultrasonography Correlation, with an Emphasis on the 2020 World Health Organization Classification. Magnetic Resonance Imaging Clinics. 2023 May 1; 31(2):285-308.