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RESEARCH ARTICLE

GLOMUS TUMOR OF THE WRIST PRESENTING AS CARPAL TUNNEL SYNDROME. A CASE REPORT OF RARE PRESENTATION

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Abstract

Glomus tumors are caused by hyperplasia of the glomus body. Extra-digital glomus tumors are occasionally challenging to identify. We report a case of a patient who was misdiagnosed with carpal tunnel syndrome and eventually after surgical excision it was found to be a Glomus tumor. Tumors must therefore be considered in the differential diagnosis of individuals with extra digital lesions that present at the wrist with stabbing pain, hypersensitivity, paroxysmal pain, and MRI findings of subcutaneous low T1\ high T2 signal cystic lesion.

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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 caused by hyperplasia of the glomus body. Masson was the first to define the condition in 1924, As a tumor of the neuromyoarterial body.¹ If a physician has a strong index of suspicion, a clinical diagnosis will be adequate to identify this tumor.

The characteristic glomus tumor triad of stabbing pain, paroxysmal pain, and cold hypersensitivity was first documented by Carroll in 1972². Due to their vague clinical characteristics, including unique placements and symptoms that differ from those of classical glomus tumors, extra digital glomus tumors are occasionally challenging to identify. Tumors must therefore be considered as a differential diagnosis in patients with extra digital lesions that exhibit the characteristics of a small or unnoticed lesion with excessive pain and sensitivity to touch and cold. Glomus tumors of the wrist are considered extremely rare.³⁴

In the extent of our research, we did not find a case of a volar wrist glomus tumor that was misdiagnosed at presentation as carpal tunnel syndrome.

Case Report:

A Forty-eight years old male patient was referred to our Orthopedic clinic as a case of carpal tunnel syndrome. He was complaining of left wrist pain and an electric shock sensation, with no history of trauma. The pain was over the volar aspect of the left wrist. The pain did not improve with analgesia and was continued with no aggravating factors.

On Examination, there were no swelling or scars. He was very sensitive to touch over the volar aspect of the left wrist, right over the transverse wrist crease area. Tinels test was clinically positive. Normal sensory and motor function of the left hand

X-ray left wrist was unremarkable

Laboratory tests including white blood cell (WBC) count, erythrocyte sedimentation rate (ESR), and C-reactive protein (CRP), were at normal range

We decided to do an Electromyography (EMG) and Nerve Conduction study (NCS) to confirm the carpal tunnel syndrome diagnosis but it came out normal.

Then an MRI 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 ganglion cyst formation. (figure 1,2)

Complete surgical excision of the cyst was done using a volar wrist approach and the specimen was sent for histopathology.

Histopathology results showed a well-demarcated tumor composed of nests of bland small, uniform, rounded cells with centrally placed round nuclei and eosinophilic cytoplasm. The tumor is surrounded by smooth muscle which represents an expanded vascular wall by the tumor. No cystic changes were detected. No evidence of necrosis. Mitotic figures are rare.

Immunohistochemistry studies showed:

The tumor cells are: Actin: positive, diffuse strong, CD34: Negative, Desmin: Negative, S-100: Negative and Ki-67 labeling index is low 5 %

The diagnosis was Solid Glomus Tumor, No malignancy

**Discussion:-**

Glomus tumor (GT) accounts for 2% of all soft tissue tumors.⁵ Up to 75% of them are found in the hand, and 50%–65% of them are found in the fingertips and/or subungual region. Over the course of 20 years, 4 extradigital glomus tumors in the wrist were identified by the Mayo Clinic in a retrospective case analysis.^{6,7,3} We found only one article of glomus tumor presenting as carpal tunnel syndrome and it was localized in the thenar muscles of the hand,⁵ which differs from the usual location of carpal tunnel pain that our case demonstrated.

Typically, Subungual glomus tumors present with a single painful lesion that is highly sensitive to palpation, dark reddish-purple or bluish skin pigmentation, and sensitivity to cold. With extradigital sites, skin darkening and cold hypersensitivity are less dependable.⁶⁷

Where our patient has presented with pain, tenderness, and hypersensitivity, there was no mass or swelling, or skin discoloration.

GT commonly presents in women between the ages of 20 and 40⁸. In our case, the patient was a male who was 48 years old.

We advised the patient to do an MRI as his findings are inconstant with carpal tunnel syndrome with a negative EMG, which showed a small subcutaneous low T1\ high T2 signal cystic lesion abutting the skin, which measure approximately 3x6x6 mm, without communication to the deep flexor tendons or the carpal tunnel structures. The radiologist has differentiated the lesion as a sebaceous cyst or an isolated ganglion cyst, this goes with Al Qattan et al; findings that show a hypointense lesion on T1, becoming hyperintense on T2 weighted images. However, MRI has been reported to have low specificity and negative predictive value⁹

The tumor was surgically removed, and we sent the specimen for histopathological confirmation. Histopathology revealed a glomus tumor. Following surgery, the recurrence rate varied from 0% to 33.3%¹⁰. Up to a year of follow-up, our patient reported total pain alleviation and no recurrence.

Conclusion:-

Extra-digital glomus tumors are rare and challenging to identify. Making such a rare diagnosis requires a strong index of clinical suspicion and should always be considered deferential in patients who present with unexplained volar wrist pain. Careful evaluation and communication by clinicians and radiologists are recommended to avoid misdiagnosis.

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