

## Case Report

## Glomus Tumor of the Index Finger: Multimodality Imaging in a Case Report

OR. Hamdaoui<sup>1\*</sup>, M. Labied<sup>1</sup>, H. Taoufik<sup>1</sup>, H. El Moudden<sup>1</sup>, G. Lembarki<sup>1</sup>, M. Sabiri<sup>1</sup>, S. Lezar<sup>1</sup>, F. Essodegui<sup>1</sup><sup>1</sup>Central Radiology Department, Ibn Rochd University Hospital, Casablanca, Morocco**Article History**

Received: 01.04.2023

Accepted: 07.05.2023

Published: 10.06.2023

**Journal homepage:**<https://www.easpublisher.com>**Quick Response Code**

**Abstract:** Glomus tumors are benign lesions developed at the neuro-myo-arterial glomus of the dermal-epidermal tissue and were first described in 1924 by Masson. This is a rare pathology, progressing very slowly, generally unrecognized, affecting young adults with a female predominance. These tumors are most commonly located in the fingers and represent 1-5% of soft tissue tumors of the hand. Imaging is important in the diagnosis and follow-up and mainly based on Doppler ultrasound and MRI. However, confirmation of the diagnosis needs a systematic anatomopathological analysis after surgical excision. We report the case of a 41-year-old woman, without any particular pathological history, who had a painful swelling of the distal index finger for 1 year. The diagnosis of glomus tumor was suggested by multimodal imaging, and surgical excision was performed to confirm the diagnosis.

**Key words:** Glomus tumor, index Finger, benign, imaging.

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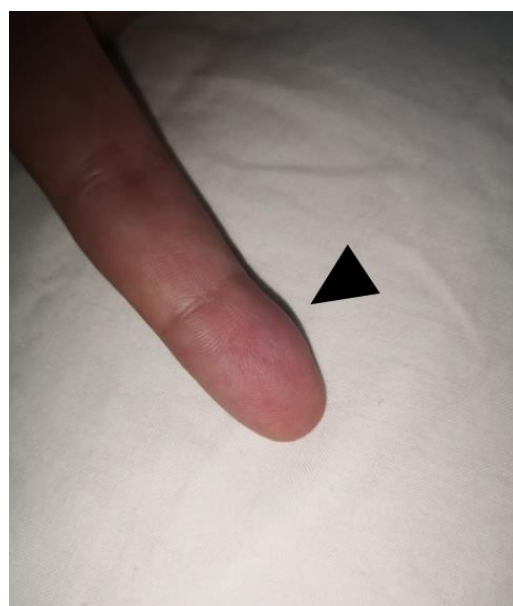
### INTRODUCTION

Glomus tumors are benign lesions, first described in 1924 by Masson, which develop at the expense of the neuromyoarterial glomus of the dermal-epidermal tissue, involved in the thermoregulation of the skin. They are relatively rare, representing about 1-5% of all hand tumors [1]. Most often, these tumors are found in the distal phalanges of the fingers, mainly in the subungual area where glomeruli are very numerous. The contribution of imaging in glomus tumors is important for diagnosis and post-treatment monitoring. Imaging is essentially based on Doppler ultrasound and MRI. However, confirmation of the diagnosis requires a systematic anatomopathological study after surgical excision.

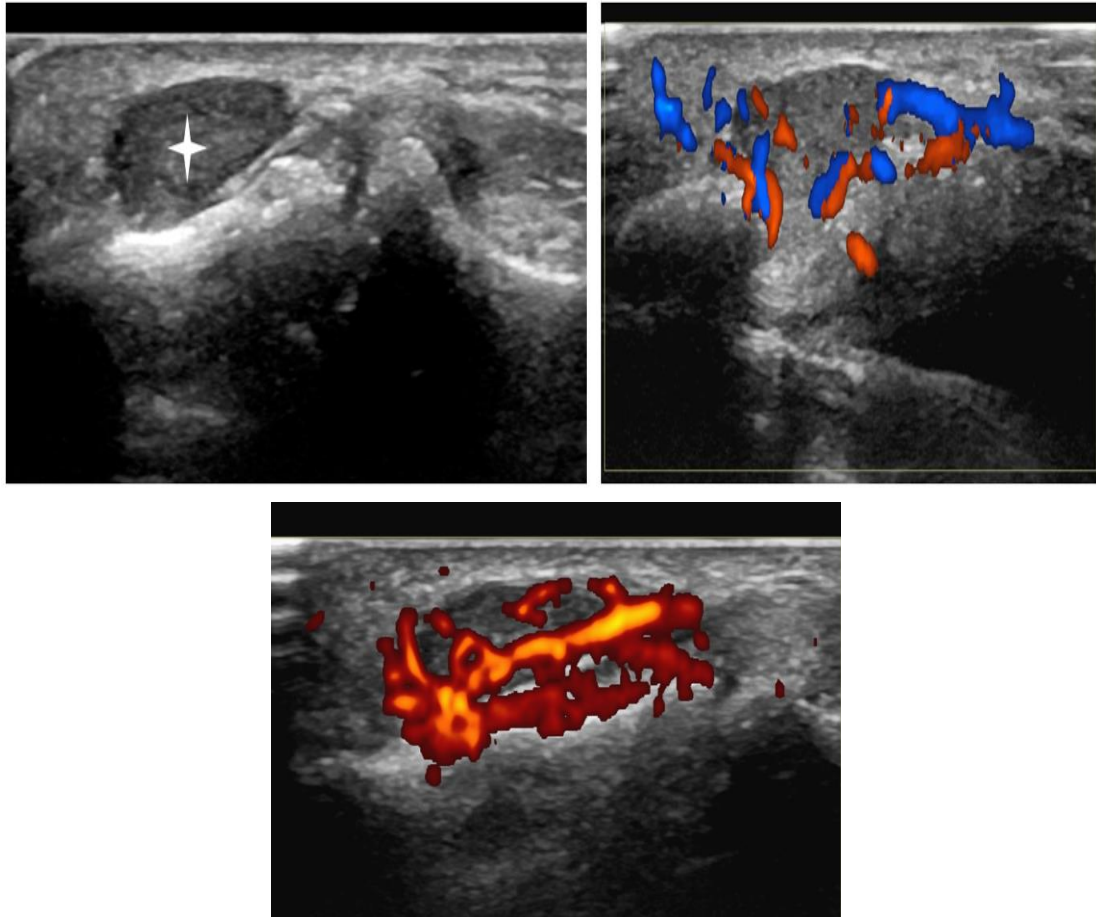
### PATIENT AND OBSERVATION

A 41-year-old woman, with no medical history, who had presented with a swelling of the right pulp index finger for 1 year, painful pressure and cold sensitivity. The clinical examination found a small nodular formation of the right index pulp finger, firm and painful on palpation, with a bluish coloration of the surrounding skin (Figure 1). Ultrasound showed a small, well-limited, homogeneous, hypoechoic, hypervascularized oval formation on color Doppler

(Figure 2). A standard radiography of the finger showed a regular bone notch in the distal phalanx with a mild thickening of the soft tissues (figure 3).



**Figure 1: Swelling of the pulp of the right index finger with bluish staining (arrow head)**



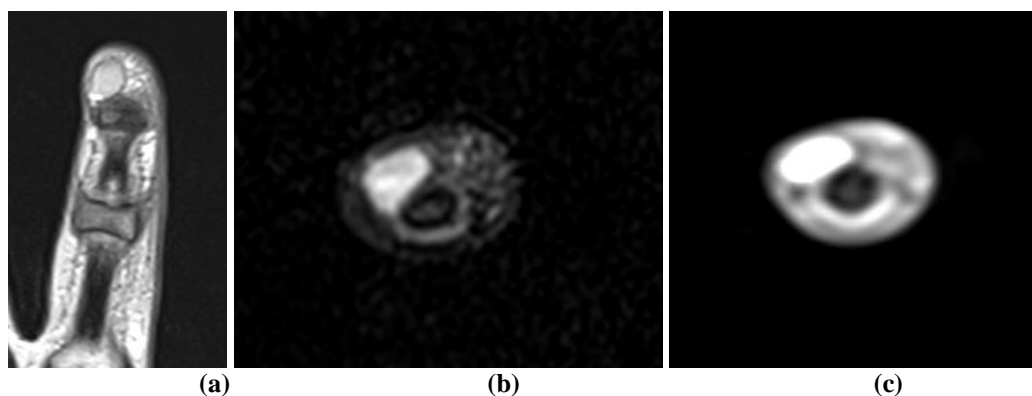
**Figure 2: Longitudinal section ultrasound on B mode (a), color Doppler (b) and energy Doppler (c): o well-limited oval lesion (asterisk), hypoechoic with important hyperemia in Doppler mode.**



**Figure 3: Standard radiography of the right index finger: showing a regular bony notch in the distal phalanx of the index finger (arrow)**

Supplemented MRI that demonstrated a small well-limited, oval formation with intermediate T1 signal, T2 hyperintensity, intensely and homogeneously enhanced after injection of right Gadolinium, which

suggested a glomus tumor (Figure 4). Following excisional biopsy of the tumor, the anatomopathological findings confirmed the diagnosis of glomus tumor.



**Figure 4: Coronal T1 (a), axial T2 FATSAT (b) and axial T1 FS with gadolinium injection (c) MRI sequences: showing an oval formation in the anteromedial soft tissues opposite the distal phalanx of the right index finger, well limited, intermediate T1 signal, T2 hypersignal, intensely and homogeneously enhanced after injection of Gadolinium.**

## DISCUSSION

Glomus tumors are reported an uncommon benign tumor, which represent 1-5% of all soft tissue tumors of the hand [1, 2]. These tumors arise from a proliferation of glomus body tissue [2]. Glomus bodies are specialized arteriovenous anastomosis responsible for thermoregulation [1,2]. The proliferation point of glomus tumors is the hand, especially the subungual areas on the lateral surface of the fingers.

Beyond the hand, several locations are also reported in the literature. They are also known as glomangiomas, hamartomas, angioneuromyomas, Masson-Barée tumors or Popoff tumors. It is a pathology of very slow evolution, generally unrecognized, affecting young adults with a female predominance. In men, the involvement is more often extra-digital [3].

The first description of glomus tumors of the hand was made by William Wood in 1812 in the form of "subpainful cutaneous nodules", tumors characterized by their small size, their firm consistency and their particular clinical and evolutionary expression, but it was Masson in 1924, who was the first to relate this tumor to a glomus origin [2,3].

Glomus tumors are typically single and rarely multiple in adults [4]. Multiple locations are more reported in children and an autosomal dominant pattern has been described [3,4]. The positive diagnosis of glomus tumors is established clinically in 50-80% of cases [3,5]. However, the delay between the onset of clinical signs and the diagnosis is often long. Pain is the main request for consultation in all series [5].

It can be spontaneous or induced by impact or cold and can be ascending, radiating into the hand, other fingers or shoulder. On inspection, a bluish or a reddish discoloration of the nail bed or lunula, or of the pulp, or even of the commissure may be observed [6]. Various imaging methods are available to clarify the

diagnosis and allow accurate assessment of the lesions. Standard radiography, an indirect imaging method for glomus tumors [6,7], is systematically used by most teams before surgery.

However, this exploration is non-specific and often normal. The most common sign is a regular erosion of the phalange underlying the tumor, making a broadly open peripheral nail notch with dense or scalloped contours, corresponding to the bony imprint of the glomus tumor on the phalange. In some cases, the notch is difficult to distinguish and the expansive lesion is only manifested by thinning of the nail shaft [7].

Ultrasound, a first line imaging method for glomus tumors, typically presenting as round or ovoid masses, homogeneous, hypoechoic or even anechoic in relation to the supporting tissue (dermis) or in relation to the nail bed for subungual tumors, the color Doppler mode typically shows a marked signal reflecting the hypervascular nature [7, 8, 9].

MRI is the technique of choice for the diagnosis of glomus tumors, which appear as an encapsulated nodular image with low signal on T1, high signal on T2, and STIR strongly enhanced after gadolinium injection [8, 9]. Cortical bone erosion can be found on MRI, but it is also difficult to detect [9]. In addition to the diagnostic aspect, MRI can determine the exact location of the tumor and consequently, can limit and provide surgery procedure [10].

It is also the most appropriate technique to detect tumor recurrence. Confirmation of the diagnosis requires a systematic anatomopathological examination after the surgical approach [9,10,11]. The prognosis is excellent and recurrence is rare if the diagnosis is clearly made and the surgical management was performed correctly [11].

## CONCLUSION

Glomus tumor is a rare benign tumor often misunderstood by many practitioners. Imaging is crucial in the diagnosis and postoperative follow-up of these tumors. MRI remains the best examination for a precise topographic and morphological assessment of the tumor. However, diagnosis of the disease is only possible on a histological examination.

## REFERENCES

1. Boussakri, H., Azarkane, M., Elidrissi, M., Shimi, M., Elibrahimi, A., & Elmrini, A. (2013). Functional results of flexor tendon injuries of the hand: about 90 cases. *The Pan African medical journal*, 15, 1-1.
2. Maalla, R., Hmid, M., Mellouli, O., & Klila, M. (2007). Glomus tumours of the hand. About 10 cases. *La Tunisie Medicale*, 85(6), 469-472.
3. Vasisht, B., Watson, H. K., Joseph, E., & Lionelli, G. T. (2004). Digital glomus tumors: a 29-year experience with a lateral subperiosteal approach. *Plastic and reconstructive surgery*, 114(6), 1486-1489.
4. Abbassi, A., Amrani, A., Dendane, M. A., El Alami, Z., El Madhi, T., & Gourinda, H. (2012). Tumeur glomique pulpaire de l'enfant: à propos d'un cas inhabituel. *Journal des maladies vasculaires*, 37(4), 219-221.
5. Wong, C. H., Chow, L., Yen, C. H., Ho, P. C., Yip, R., & Hung, L. K. (2001). Uncommon hand tumours. *Hand Surgery*, 6(01), 67-80.
6. Marchadier, A., Cohen, M., & Legre, R. (2006). Subungual glomus tumors of the fingers: ultrasound diagnosis. *Chirurgie de la main*, 25(1), 16-21.
7. Chen, S. H. T., Chen, Y. L., Cheng, M. H., Yeow, K. M., Chen, H. C., & Wei, F. C. (2003). The use of ultrasonography in preoperative localization of digital glomus tumors. *Plastic and reconstructive surgery*, 112(1), 115-119.
8. Dahlin, L. B., Besjakov, J., & Veress, B. (2005). A glomus tumour: classic signs without magnetic resonance imaging findings. *Scandinavian journal of plastic and reconstructive surgery and hand surgery*, 39(2), 123-125.
9. Vasisht, B., Watson, H. K., Joseph, E., & Lionelli, G. T. (2004). Digital glomus tumors: a 29-year experience with a lateral subperiosteal approach. *Plastic and reconstructive surgery*, 114(6), 1486-1489.
10. Bhaskaranand, K., & Navadgi, B. C. (2002). Glomus tumour of the hand. *Journal of hand surgery*, 27(3), 229-231.
11. Assmus, H., & Dombert, T. (2002). Glomus tumours of the extremities: localisation and operative treatment in 36 cases. *Handchir Mikrochir Plast Chir*. 34(2), 103-7.

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**Cite This Article:** OR. Hamdaoui, M. Labied, H. Taoufik, H. El Moudden, G. Lembarki, M. Sabiri, S. Lezar, F. Essodegui (2023). Glomus Tumor of the Index Finger: Multimodality Imaging in a Case Report. *EAS J Radiol Imaging Technol*, 5(3), 67-70.

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