Glomus tumor, an unusual location at 5 th digit's pulp. Case report and review of the literature.

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ABSTRACT

A 43-year-old man presented with classic symptoms of glomus tumor in the left 5th digit that failed to show on MRI. Love's sign was our only guide to perform surgical exploration despite absence of radiological findings. A yellowish 2mm mass was excised from the pulp of the 5th digit. We concluded that enhanced MRI is recommended, while exploration will follow after a classic triad exists. At follow up the patient is pain free.

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INTRODUCTION

Glomus apparatus is a shunt mechanism responsible for controlling blood pressure and temperature present in high numbers in the finger tips. Glomus tumor is a benign neoplasm usually located in the subungual region of the digits. It has also been identified at several other regions like stomach, trachea and retina.

It was first described by Wood in 1812 and histologically characterized by Masson in 1934. Glomus tumor constitutes 1% to 4,5 % of all hand tumors[1].

The patient usually complains about pain, cold sensitivity and tenderness in palpation. A blue blush can be seen laying at the nail bed.

Useful in diagnosis are Love sign (direct pressure is applied at the region) and Hildreth sign (pressure cuff is inflated proximally and pain is abolished). Diagnosis is delayed for a mean of seven years; range 6 months to 25 years[2],[3].

CASE PRESENTATION

A 43 years old male with no medical history presented to our out-patient clinic seeking for advice about pain at the pulp of the 5th finger over the past 8 years.

The pain initiated when a specific spot of the pulp was compressed by the tip of a pencil, by cold water and while consuming spirits.

MRI scan and scintigram were performed previously with no noticeable findings according to the radiologist (pic.1).

After detailed clinical examination we decided upon a surgical exploration. A direct approach of the pulp revealed a spherical mass at the volar side on the periosteum that was ultimately removed. Cauterization was also used on periosteum. Biopsy resulted in a glomus tumor of the pulp. Fig.1 & 2

METHODS AND MATERIALS

A PubMed search results:

Keywords	Results
Glomus tumor	4489
Glomus tumor + hand	531
Glomus tumor + digit	66
Glomus tumor + digit + pulp	25
Glomus tumor + digit + pulp + english	19

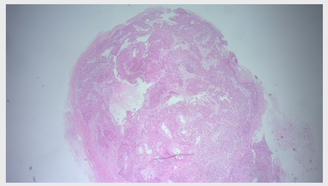


Figure 1.SMA x10

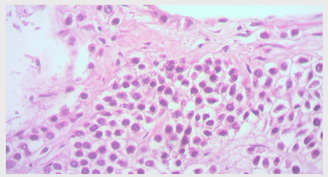


Figure 2. CD34 x20

RESULTS

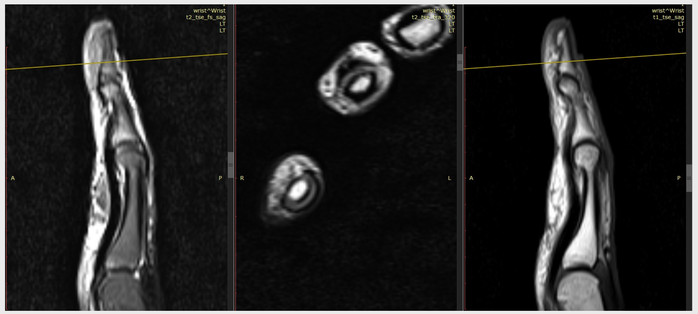
Reviewing the literature, the percentage for a pulp glomus tumor is 7,7% whereas overall occurrence of glomus tumor of the hand reaches 4,5-5% [4]. Location at the small finger is about 3% to 11% and recurrence rate doesn't alter compared to other locations (15% recurrence rate).[4]

Mean age of occurrence is 40,8 years and is more common in women.

Most common complication for transungual removal is nail deformity at 12% and recurrence 6 - 15%. Direct approach of the pulp, may present tip numbness 8%.

Table 1.
Review of the Literature on Glomus Tumors on the Digit

First Author	Study Type	Sample Size	Gender: Men	Gender: Women	Age (y)	Size (mm)	Duration of the Symptoms (y)	Location	Diagnosis	Complications: Recurrence	Complications: Nail Deformity
Nazerani et al[5]	Case series	8	3	5	38.5 (25–58)	<6 (n = 7) 12 (n = 1)	—	Ulnar side (n = 3) Radial side (n = 5)	MRI and x-ray (n = 8)	n = 2	n = 2
Hamdi[6]	Retrospective cohort	8	3	5	46 (23–61)	2–6	2.10[17]	Subungual (n = 6) Pulp (n = 2)	MRI and x-ray (n = 8)	n = 0	n = 0
Tomak et al[7]	Case series	14	4	10	46 (28–65)	3–6	7.4 (0.6–25)	Subungual (n = 14)	X-ray (n = 14)	n = 2	n = 3
Fujioka et al[2]	Case series	4	2	2	29 (25–31)	—	4.5 (0.6–10)	Subungual (n = 4)	MRI (n = 4)	n = 0	n = 0
Takata et al[3]	Retrospective cohort	30	7	23	42 (16–78)	—	7.8	Subungual (n = 30)	—	n = 2	n = 5
Bhaskaranand and Navadgi[8]	Case series	18	11	7	31 (16–51)	—	1.9 (0.1–5)	Subungual (n = 7)Paronugual (n = 4)Palmar-radial (n = 1) Palmar-ulnar (n = 2)	X-ray (n = 2) MRI (n = 1)	n = 0	n = 0
Saaiq[9]	Case series	17	5	12	41.17 (27–62)	2–11	1.6 (0.3–3)	Subungual (n = 14) Volar pulp (n = 3)	MRI (n = 17)	n = 0	n = 0
Lin et al[10]	Retrospective cohort	75	17	58	Women 41.2 (15–75) Men 42.7 (16–71)	2–8	3.9	Nail matrix (n = 20) Nail bed (n = 29)Volar (n = 19)	X-ray (n = 15)US (n = 4)MRI (n = 2) MRI and x-ray (n = 8)US and x-ray (n = 1)	n = 13	n = 0



Picture 1. MRI T1 & T2. The radiologists and physician have to be highly suspicious in order to identify the mass

DISCUSSION

Glomus tumor of the pulp is a rare entity. Even rarer in the pulp of the fifth digit. The classic triad of symptoms are hypersensitivity to cold, paroxysmal pain and pinpoint pain in the finger. Dahlin et. al have reported a case where MRI scan was insufficient to diagnose the tumor of the pulp similarly to our case.[6] In such cases, we are also advocating for the use of gadolinium and open exploration as Dahlin et. al are proposing.

The cold sensitivity test is reported to have 100% sensitivity, specificity and diagnostic accuracy however not all patients present with pain and cold sensitivity [1].

The Love's test has 100% sensitivity and 78% diagnostic accuracy, whereas the Hildreth's test has 71.4% sensitivity, 100% specificity and 78% diagnostic accuracy[7]. Diagnosing glomus tumors by ultrasonography, it is recommended the use of a 10 MHz probe [8].

Differential diagnosis includes: angioma, schwannoma, tumor of neurogical origin, osteoid osteoma and subungual lesion.

CONCLUSIONS

Glomus tumor mostly presents in women at the early forties.

The classic symptoms triad, Love's sign and Hilderth's sign are the only clinical tools that physicians could use.

We advocate for a MRI scan with gadolinium and Love sign in order to detect the tumor.

Surgical exploration is often needed for an undiagnosted glomus tumor but can be destructive if you don't know where to look.

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