Scholars Journal of Medical Case Reports
Abbreviated Key Title: Sch J Med Case Rep
ISSN 2347-9507 (Print) | ISSN 2347-6559 (Online)
Journal homepage: https://saspublishers.com

OPEN ACCESS

Orthopedic & Traumatological Surgery

Giant Cell Tumors of the Synovial Sheaths (TCGGS) of the Hand: About 15 Cases

M. Abakka[1*], H. El Ouagari[1], MJ. Mekkaoui[1], M. Bouffetal[1], RA. Bassir[1], M. Kharmaze[1], MO. Lamrani[1], MS. Berrada[1]

[1]Department of Orthopedic and Traumatological Surgery, Hospital University Center Ibn Sina of Rabat, Morocco

DOI: 10.36347/sjmcr.2023.v11i05.056 | **Received:** 12.04.2023 | **Accepted:** 15.05.2023 | **Published:** 23.05.2023

***Corresponding author:** M. Abakka
Department of Orthopedic and Traumatological Surgery, Hospital University Center Ibn Sina of Rabat, Morocco

Abstract **Original Research Article**

Giant cell tumor is a benign tumor mainly affecting the epiphyses of the long bones. It mainly affects young adults between the ages of 20 and 40. Its origin remains uncertain. It is a purely lytic and usually aggressive tumor that destroys bone, possibly even leading to a fracture. Occasionally, there may be invasion of the soft tissues. Axial computed tomography or magnetic resonance are very useful in determining tumor extension. The differential diagnosis mainly includes lesions affecting the epiphyseal regions of the bones such as chondroblastoma and clear cell chondrosarcoma. The treatment of giant cell tumor is first and usually surgical. It consists of an extensive curettage under direct vision through a large bone window. Curettage can be made more effective by using physicochemical means such as phenol or liquid nitrogen to sterilize the tumor bed and reduce the risk of local recurrence. The risk of recurrence is significant, even with modern means of curettage and is typically around 30%. Large resection of the diseased bone segment is indicated for regions where it does not cause significant functional deficit. The risk of recurrence is then much lower. Although presenting a benign appearance on histopathological examination, "benign" pulmonary metastases can sometimes be seen. Recent studies suggest the presence of chromosomal abnormalities or the expression of certain genes, which could explain the behavior, sometimes even malignant, of these tumors.

Keywords: TCGGS-Benign-Tumor-Limbs-Hand.

INTRODUCTION

Giant cell tumors of the tendon synovial sheaths (TCGGS), or giant cell tenosynovial tumor, or haemopigmented villonodular synovitis, develop from the articular and peri-articular synovium. These tumors constitute a benign proliferative disorder of the synovium whose etiopathogenesis remains undetermined. It is a frequent benign tumor in the hand, second in order of frequency after the synovial cyst.

TCGGS presents as a usually single, painless, slowly growing mass that may last for several years. The objective of our work was to study the epidemiological-clinical and therapeutic characteristics of TCGGS, to evaluate the results of surgical treatment and to identify the factors of recurrence.

MATERIALS AND METHODS

We report 15 cases of TCGGS of the hand, treated and followed at the Orthopedic Department of CHU IBN SINA in Rabat over a period of 6 years (2017-2022). We established an exploitation sheet for all the patients to study the age, the sex, the circumstance of discovery, the duration of evolution, the clinical characteristics, radiological of the tumor, the operative report, the result pathology, possible complications, the function of the operated finger and finally the occurrence or not of a recurrence. Epidemiological, clinical, radiological and anatomo-pathological data were retrieved from medical records.

All patients underwent surgical treatment by tumor resection. After incision, we marked the collateral pedicles and finger tendons for better tumor exposure. After tumor resection, the surgical specimen was sent for an anatomo-pathological examination.

Closure is ensured by separate stitches after hemostasis. The hand is immobilized with a cuff splint in the intrinsic position for 2 to 3 weeks, when the stitches are removed. Rehabilitation is prescribed on this date. At the last follow-up, the result of the surgical treatment is evaluated by looking for a possible recurrence or another location, by studying digital

mobility, by detecting a possible complication, and by assessing the quality of the scar.

RESULTS

It was in most cases a young adult female with 12 women and 3 men with an average age of 36 years (16 years-69 years). The dominant side was affected in 62% of cases. The tumor was not very symptomatic, thus explaining the long diagnostic latency, which is on average 18 months with extremes of 2 months and 8 years. The reasons for consultation were the constant appearance of swelling (100%), difficulty in mobilizing the interphalangeal joints (6%) and digital pain (18%). Topographically, the tumor was distributed as follows: 85% at the level of the index finger, 10% at the level of the middle finger, 5% at the level of the ring finger. It sat palmar in 66% of cases, dorsal in 22% of cases and mixed in 12% of cases. The tumor was near the joint in 20% of cases.

Standard radiography centered on the diseased finger was performed systematically in all our patients. This examination inconstantly showed indirect signs of the tumour, namely a thickening of the soft tissues in a third of the cases, a geode in 2 cases, and cortical erosion in 5 cases.

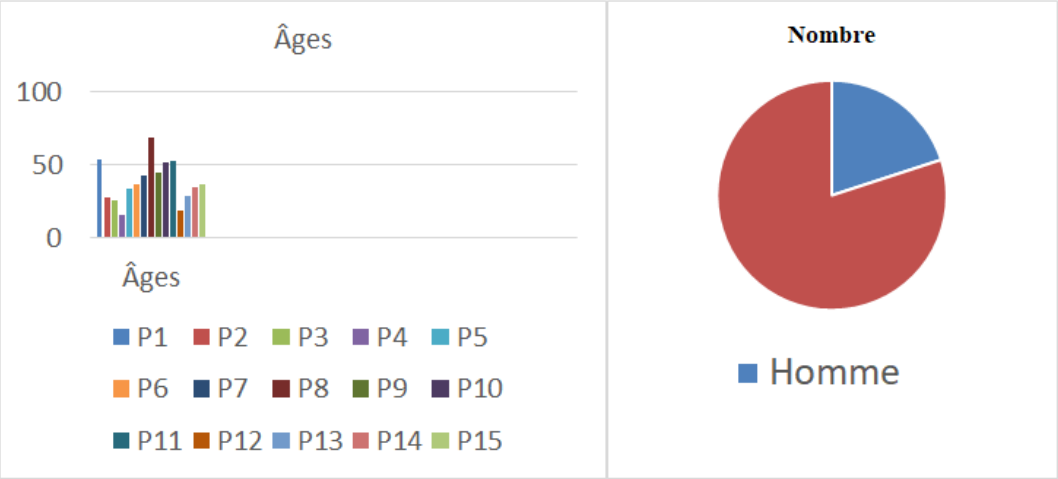
Faced with diagnostic doubt with a cystic tumor and for large tumors, additional exploration by ultrasound of the soft tissues was carried out in 6 cases and by MRI in 2 cases, confirming the appearance of a solid tumor, but without presumption of the histological diagnosis.

All the patients benefited from an excisional biopsy in view of the clinical arguments and the intraoperative macroscopic aspect. Macroscopically it was an encapsulated, polylobed mass of brownish yellow color. Difficulties were noted during the surgical excision: four tumors had an extension under the flexor tendon, two cases had an extension under the extensor tendon, one tumor was in contact with the digital pedicle and one tumor was complicated by a joint invasion.

On histological study, the tumor is formed of polynucleated histiocytic cells dispersed between collagen fibers with highly vascularized hyperplasia of the synovium. Macrophages are full of lipid vacuoles with deposit of variable amount of hemosiderin. The tumor is encompassed by its own capsule with extensions that penetrate and partition the mass into several nodules of variable size. No signs of malignancy were reported (nuclear atypia or mitotic activity).

After a mean follow-up of two years, we noted a single recurrence (7%) occurring three years postoperatively. This recurrence was corrected with good functional evolution. Furthermore, we did not observe any iatrogenic complications, particularly nervous ones.

Reeducation was systematically prescribed. The interested finger recovered its full mobility. We noted a complete disappearance of pain and hypoesthesia in patients with these two complaints before tumor excision. No case of hypoesthesia or vascular involvement complicated our patients. No cases of skin necrosis were noted. The return to work at the same station was in principle among sick workers after a convalescence period of 21 days (16 days to 30 days).



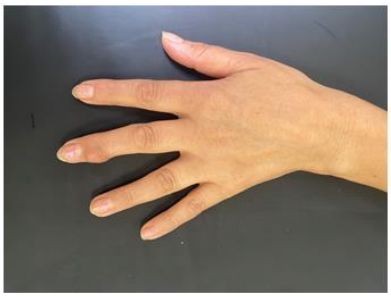


Figure 1: Preoperative clinical image

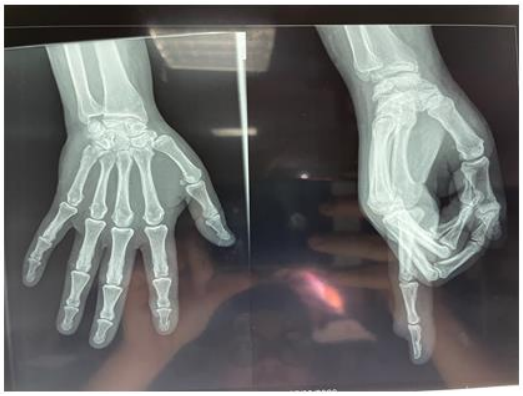


Figure 2: Preoperative X-ray

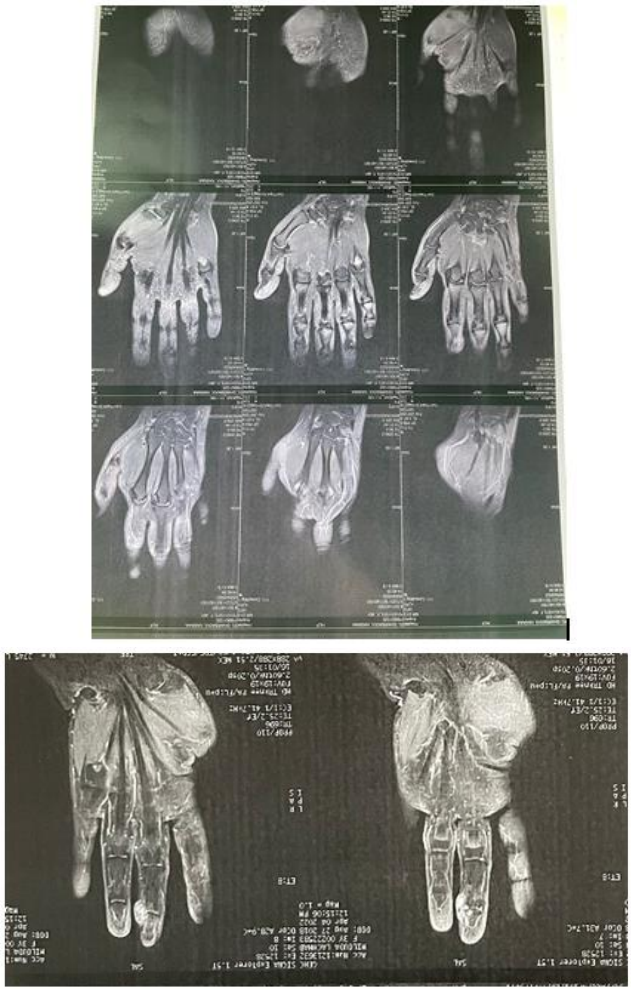


Figure 3: Preoperative MRI

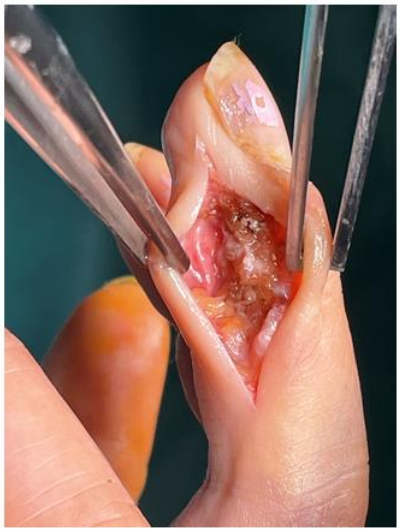
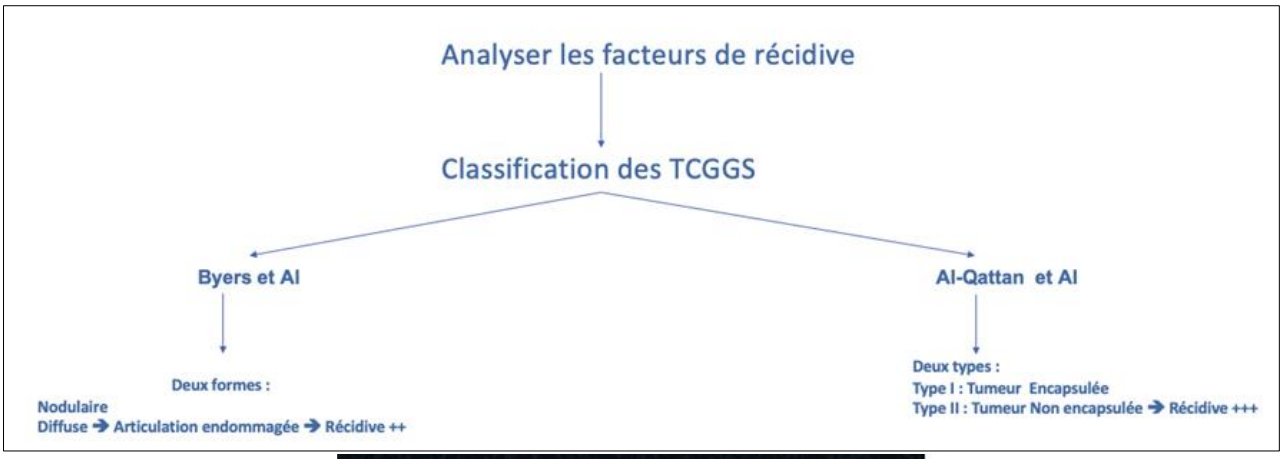


Figure 4: Peroperative image after resection

Figure 5: Postoperative image after hemostasis and closure

Figure 6: Tumor after resection



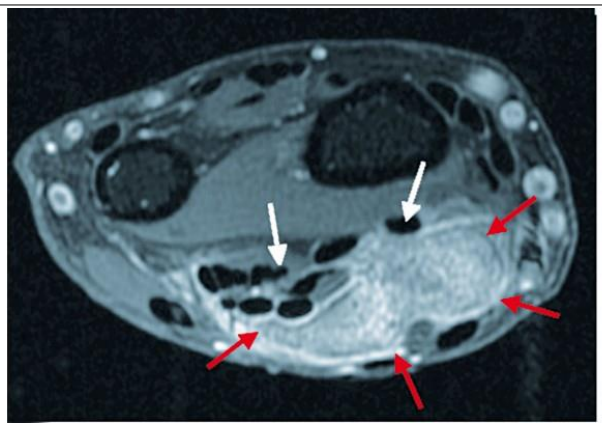


Figure 7: MRI of the hand showing the diffuse shape of the tumor

DISCUSSION

The giant cell tumor of the synovial sheaths of the hands is a tumor of young adults, with a female predominance, mainly affecting the index finger next to the DIP, then the MP and finally the PIP. Like most soft tissue tumours, the etiology of TCGGS of the hand remains unknown.

Clinically: digital swelling, generally single, painless in the majority of cases, often palmar, firm, well limited, of variable size, slowly progressive and mobile in relation to the superficial level.

Radiologically: Standard X-ray just allows in some cases to visualize a thickening of the soft parts, ultrasound confirms the tissue nature without prejudging its etiology (INTEREST OF MRI ++)

Cytological study of needle tumor aspiration product. Giant cell tenosynovial tumor remains a lesion of unknown nature with a relatively high local recurrence rate of up to 45% in some series. Several recurrence factors have been reported in the literature. Increased cellularity and elevated mitotic activity (Rao and Vigorita et Al Molecular oncology). Difficulty of complete surgical excision of the tumor (Damaged joint, bone lesion).

CONCLUSION

TCGGS are benign tumors with strictly local malignancy with an aggressive tendency. The diagnosis although it is late, must be evoked in front of any digital swelling, palmar and/or dorsal, painless, evolving for a long time. The evolutionary prognosis is dominated by the risk of recurrence after incomplete surgical excision. Their management calls for surgery, which remains difficult and must be well planned and correctly performed to avoid recurrences.

REFERENCES

1. Al-Qattan, M. M. (2001). Giant cell tumours of tendon sheath: classification and recurrence rate. *Journal of Hand Surgery*, *26*(1), 72-75.
2. Rao, A. S., & Vigorita, V. J. (1984). Pigmented villonodular synovitis (giant-cell tumor of the tendon sheath and synovial membrane). A review of eighty-one cases. *JBJS*, *66*(1), 76-94.
3. Reilly, K. E., Stern, P. J., & Dale, J. A. (1999). Recurrent giant cell tumors of the tendon sheath. *The Journal of hand surgery*, *24*(6), 1298-1302.
4. Kotwal, P. P., Gupta, V., & Malhotra, R. (2000). Giant-cell tumour of the tendon sheath: is radiotherapy indicated to prevent recurrence after surgery?. *The Journal of Bone and Joint Surgery. British volume*, *82*(4), 571-573.

5. Ozalp, T., Yercan, H., Kurt, C., Ozdemir, O., & Coskunol, E. (2004). Giant-cell tumors of the tendon sheath involving the hand or the wrist: an analysis of 141 patients. *Acta orthopaedica et traumatologica turcica*, *38*(2), 120-124.
6. Kitagawa, Y., Ito, H., Yokoyama, M., Sawaizumi, T., & Maeda, S. (2004). The effect of cellular proliferative activity on recurrence and local tumour extent of localized giant cell tumour of tendon sheath. *The Journal of Hand Surgery: British & European Volume*, *29*(6), 604-607.
7. Grover, R., Grobbelaar, A. O., Richman, P. I., & Smith, P. J. (1998). Measurement of invasive potential provides an accurate prognostic marker for giant cell tumour of tendon sheath. *Journal of Hand Surgery*, *23*(6), 728-734.
8. Suresh, S. S., & Zaki, H. (2010). Giant cell tumor of tendon sheath: case series and review of literature. *Journal of hand and microsurgery*, *2*(02), 67-71.