**SAS Journal of Surgery**
Abbreviated Key Title: SAS J Surg
ISSN 2454-5104
Journal homepage: https://www.saspublishers.com

OPEN ACCESS

**Plastic Surgery Service**

# Idiopathic Tenosynovitis with Rice Bodies: Clinical Case Report

Md. Angie Loaiza Morocho[1*], Md. Paul Aldaz Apolo[1], Md. Patricia Prado Valencia[2], Md. Alexandra Berrazueta Pinto[2], Md. Nataly Prado Ordoñez[1], Md. Carolina Lizarzaburu Ortiz[1], Md. Carina Contreras Yanez[1], Md. Indira Peñafiel Miranda[1]

[1]Resident, Plastic Surgery Service, Military Hospital N°1, Gran Colombia y Queseras del medio, Quito 170112, Ecuador
[2]Plastic Surgery Specialist, Military Hospital N°1, Gran Colombia y Queseras del medio, Quito 170112, Ecuador

**DOI:** 10.36347/sasjs.2022.v08i12.011 | **Received:** 02.11.2022 | **Accepted:** 14.12.2022 | **Published:** 18.12.2022

***Corresponding author:** Md. Angie Loaiza Morocho
Resident, Plastic Surgery Service, Military Hospital N°1, Gran Colombia y Queseras del medio, Quito 170112, Ecuador

**Abstract** **Case Report**

***Introduction:*** Tenosynovitis is the main cause of pain in the upper limbs; it can be originated from infectious and non-infectious causes. 50% of reported cases are tuberculous tenosynovitis. When the rice body formation pathogenesis is uncertain after performing all extension studies, it is called idiopathic tenosynovitis. ***Clinical Case:*** A 79- year-old male patient with a pathological history of chronic ischemic heart disease treated with cardiac catheterization with stent placement comes to the Plastic Surgery Office due to the presence of multiple masses on the back of the right hand in zone V, VI and VII with 3 years of evolution, without significant accompanying symptoms. Physical examination revealed the presence of multiple non-painful mobile masses of approximately 4x5cm in the extensor zone V, VI and VII of the right hand. In the surgical exploration for biopsy, within the macroscopic characteristics, multiple converging and interconnected masses were found with granular content infiltrating sheath and tendon itself (II, III, IV and V fingers of the right hand). Posterior capsule of masses is in contact with intrinsic and interosseous muscles of the right hand with the appearance of rice bodies. At the moment, the patient shows a favorable evolution and continues in periodic controls. ***Conclusions:*** In this case, having no underlying diseases related to this pathology and having ruled out among the differential diagnoses, it was determined that the occurrence of rice body masses in an infiltrative manner in the tendons is of an idiopathic origin, so our patient will remain on long-term follow-up, but so far with favorable evolution.

**Keywords:** Tenosynovitis, Rice Bodies, Idiopathic.



## INTRODUCTION

Tenosynovitis is the main cause of pain in the upper limbs, mainly when it is located in the wrist region. This may have different etiologies which are divided into infectious and non-infectious [1].

In 1895, for the first time, tumor masses with the appearance of rice bodies associated with infection by M. tuberculosis on the bursae and joints and rarely with tendon involvement were described. Other related pathologies are rheumatoid arthritis and systemic lupus erythematosus [2].

Approximately 50% of reported cases are classified as tuberculous tenosynovitis. When the rice body formation pathogenesis is uncertain after performing all the extension studies, it is called idiopathic tenosynovitis [3].

The characteristic clinical picture shows masses in joint areas, accompanied by limitation of movement causing pain especially when these masses are pressing on peripheral nerves [4].

Another differential diagnosis in view of the characteristics of rice bodies is hydatidosis which is caused by parasites such as Echinococcus Granulosus, most frequently affecting the liver and lungs, so the involvement of the musculoskeletal system is atypical and infrequent, being considered 1-4% of cases [5].

Cases not associated with any of these mentioned pathologies are infrequent and their origin remains unknown.

## CLINICAL CASE

A 79-year-old male patient with a pathological history of chronic ischemic heart disease treated with

cardiac catheterization with stent placement comes to the Plastic Surgery Office due to the presence of multiple masses on the back of the right hand in zone V, VI and VII with 3 years of evolution, without significant accompanying symptoms.

Physical examination revealed the presence of multiple non-painful mobile masses of approximately 4x5cm in the extensor zone V, VI and VII of the right hand (Figure 1).

**Figure 1: Multiple masses in the extensor zone V, VI and VII of the right hand**

The MRI study of the right-hand shows that in the distal interphalangeal joint of the fifth finger there is presence of thickening of the collateral ligaments with no increase in signal intensity. In the wrist and back of the ulnar side there is a lobulated space-occupying lesion of defined borders that extends in the tendon sheath of the extensors of the IV and V compartment in the wrist towards the back of the hand and towards the V finger. It is isointense in relation to the muscle in T1 and T2 sequences and in STIR. It is heterogeneous and predominantly hyperintense. With the use of contrast medium, there is a slight increase in intensity, without alteration of the tendons to which it encompasses. There are no images that suggest infiltration to muscular or bony structures.

In the surgical exploration for biopsy (Figure 2), within the macroscopic characteristics, multiple converging and interconnected masses were found with granular content infiltrating sheath and tendon itself (II, III, IV and V fingers of the right hand). Posterior capsule of masses is in contact with intrinsic and interosseous muscles of the right hand with the appearance of rice bodies (Figure 3).

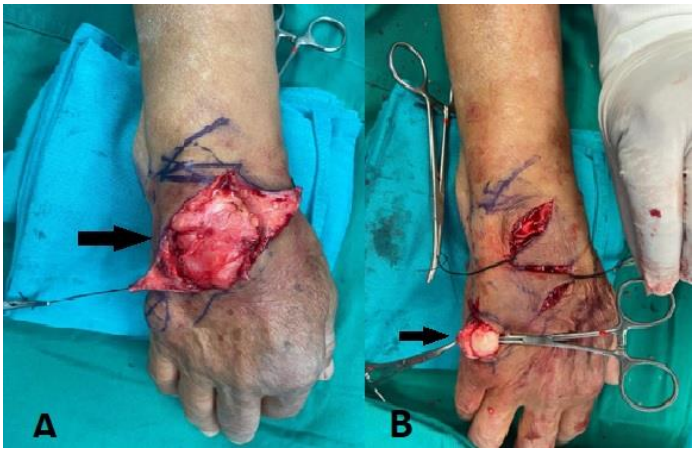


**Figure 2: A: Surgical exploration. B: Mass capsule of V finger of the right hand**

**Figure 3: Rice body masses in the right hand**

**Figure 4: Tendon sheaths without masses. Final result of the surgery prior to the wound closure**

The histopathological result determines idiopathic tenosynovitis with free rice bodies.

Microscopically, several ghost eosinophilic nodular masses with different areas inside and cyst capsule with lymphocytic inflammatory infiltration with clusters of fibrous tissue.

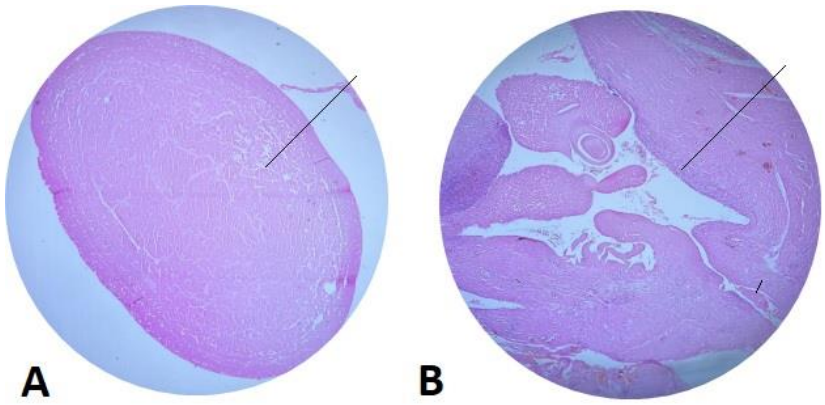


**Figure 5: A: Collagen and fibrin accumulations observed with 4x lens. B: Non-specific eosinophilic material observed with 4x lens. "Courtesy of Dr. Valencia, Pathologist in charge of the HE-1 case"**

Post-surgical controls showed wound dehiscence with fibrinoid tissue; therefore, it was treated periodically with advanced healing techniques. Microbiological culture of secretion with Ziehl-Neelsen stain was performed to rule out infection by Tuberculosis, obtaining negative results. At the moment, the patient shows a favorable evolution and continues in periodic controls.

## DISCUSSION

Tenosynovitis with rice bodies is generally associated to infectious events produced in most cases by Mycobacterium tuberculosis; other related diseases are rheumatoid arthritis and systemic lupus erythematosus. When the etiology cannot be established, it is called idiopathic tenosynovitis, a rare disease with few cases reported in the literature [1, 2]. The main complications are dissemination to structures in contact, necrosis, tendon rupture, and risk of compartment syndrome [3].

The formation of rice bodies is the result of a non-specific inflammatory response [2], theory states that there are synovial micro-infarcts, which produce detachment of the infarcted tissue into the synovial fluid. The gradual secretion of fibrin by synovial B cells and the deposit of fibrin from the synovial fluid itself form the final structure of the rice bodies [6, 7]. Other authors suggest that the formation is independent of the synovial fluid and that it depends on fibrin aggregation [2].

Its clinical manifestations are nonspecific, the presence of a mass and pain are the symptoms frequently detected, the latter especially when there is compression of a tendon sheath. Neurological signs appear when there is compression of the median nerve. Due to the absence of systemic symptoms, it is diagnosed late [1, 2] According to Pertea *et al.*, the average age when diagnosed is 31 to 81 years old. The number of rice bodies is directly proportional to the duration of the disease [2].

The diagnosis is usually intraoperative in which the presence of the rice bodies could be easily determined [2], however, magnetic resonance imaging is the most effective imaging technique for their detection. With this method, they are observed as homogeneous, isodense or hypodense nodules in T1 sequence and minimally hyperintense in T2 sequence [2, 3, 6]. With the histopathological study, the diagnosis is possible. Besides, to detect mycobacterial infections, the studies of choice are bacterial cultures and Ziehl-Neelsen staining. However, there are cases like the one presented in which in spite of all the diagnostic approach, the etiology cannot be identified [2, 7].

The treatment of choice is wide synovectomy with removal of the rice bodies, mainly when there is nerve compression. According to Tian *et al.*, the complete removal of the rice bodies achieves complete relief of symptoms and is a predictor of favorable prognosis by reducing the risk of complications such as functional limitations and tendon rupture [2, 6].

Recurrence of idiopathic tenosynovitis is higher than tuberculous tenosynovitis, with a recurrence rate of 50% in the first year, which is why follow-up should be carried out for long periods. It is important to mention that most of the reported cases of idiopathic tenosynovitis located in the wrist and finger flexors are men over 60 years of age as in this research [2].

## CONCLUSION

Several years ago, tumor masses with the appearance of rice bodies were described in tendons. Those were associated with infection by M. tuberculosis, or rheumatoid arthritis, systemic lupus erythematosus. The cases that have not been associated with these diseases are extremely rare, there is little bibliography and few reported cases. A small percentage is usually idiopathic because the origin is unknown.

In this case, since there are no underlying diseases related to this pathology and after ruling out differential diagnoses and corroborating the results with histopathological studies, it was determined that the occurrence of space- occupying rice bodies in the tendons has and idiopathic origin. The surgical approach helps us to reduce the complications that this pathology may produce, such as compartment syndrome, functional limitations or tendon rupture; therefore, our patient will remain in long-term follow-up, but so far with a favorable evolution.

### CONFLICT OF INTEREST

We, the authors, declare that we have no personal, financial, intellectual, economic, and corporate conflicts of interest.

**Financing:** Self-funded.

## ACKNOWLEDGMENTS

We thank the Plastic Surgery Service of the Military Hospital No. 1 Quito, for allowing us access to the information to carry out this case report.

## REFERENCES

1. Bayram, S., Erşen, A., Altan, M., & Durmaz, H. (2016). Tuberculosis tenosynovitis with multiple rice bodies of the flexor tendons in the wrist: A case report. *Int J Surg Case Rep*, 27, 129–32.
2. Perţea, M., Veliceasa, B., Velenciuc, N., Terinte, C., Mitrea, M., Ciobanu, P., ... & Luncă, S. (2020). Idiopathic tenosynovitis with rice bodies. *Romanian Journal of Morphology and Embryology*, *61*(2), 457-63.
3. Cohen-Tanugi, S., Wright, M. L., & Kadiyala, R. K. (2018). Flexor tenosynovitis of the hand caused

by Mycobacterium tuberculosis. *Journal of the American Academy of Orthopaedic Surgeons. Global Research & Reviews*, *2*(4), e083.

4. Marrero, L. P., Díaz, H. L., Riverón, L. O. M., Noda, E. S., Olarán, H. M., & Rodríguez, A. R. (2018). Tenosinovitis inespecífica en granos de arroz de los tendones flexores de la mano. *Revista Cubana de Ortopedia y Traumatología*, 32(1), 17.
5. Pleguezuelo Navarro, M., Iglesias Flores, E. M., Domínguez Jiménez, J. L., González Galilea, A., Abad Lara, J. A., Jiménez Sánchez, C., & de Dios Vega, J. F. (2006, May). Hidatidosis musculoesquelética: una localización atípica. In *Anales de medicina interna* (Vol. 23, No. 5, pp. 229-231).
6. Tian, Y., Zhou, H. B., Yi, K., & Wang, K. J. (2022). Idiopathic tenosynovitis of the wrist with multiple rice bodies: A case report and review of literature. *World J Clin Cases*, [Internet]. 10(32), 11908–20. Available from: https://www.wjgnet.com/2307-8960/full/v10/i32/11908.htm
7. Mohammed Reda, F., Talal, G., Moncef, B., Reda-Allah, B., Moulay Omar, L., & Mohammed Saleh, B. (2018). Mass of the thenar eminence hiding idiopathic massive rice bodies formation with a compression of the median nerve: Case report and review of the literature. *Int J Surg Case Rep*, [Internet]. 50, 28–31. Available from: https://linkinghub.elsevier.com/retrieve/pii/S2210261218302748