

# An Unusual Case of Post-traumatic Intramuscular Organised Haematoma of the Left Hand

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## ABSTRACT

An organised haematoma is a benign cystic lesion in which the haematoma is enclosed by a superficial fibrotic capsule. It is also referred to as chronic expanding haematoma or hematic cyst. Organised haematoma can be observed in various sites, but it is extremely rare to find it in an intramuscular location. This is a rare case of organised haematoma in the palm of the left hand of a 75-year-old female, which occurred after an accidental injury from broken bangles fifteen years ago. The swelling gradually increased in size and became painful over the years. A pre-operative Magnetic Resonance Image (MRI) revealed a well-defined, large soft tissue density lesion located in the subcutaneous plane of the interdigital space between the left thumb and index finger, extending into the volar and dorsal aspects of the hand. An incision was made on the skin over the swelling, followed by excision. The patient was discharged with a good post-operative outcome.

**Keywords:** Chronic haematoma, Cystic lesion, Fibrotic capsule

## CASE REPORT

A 75-year-old female patient presented to the plastic surgery outpatient department in September 2022 with a chief complaint of a painful swelling in the palm of her left hand, specifically in the thenar region, persisting for 15 years. The injury occurred when broken bangles penetrated through the left palm following an accidental fall 15 years ago. A painful swelling developed at the site, caused by the accumulated broken pieces of the bangles. Initially, first aid was administered, and the palm wound was sutured under local anaesthesia. The bleeding stopped, and the wound healed. However, within two months after apparent healing, a painful swelling re-appeared at the same site (palmar aspect of the hand, adductor region of the thumb). As the swelling continued to increase in size and cause pain, the patient sought consultation with specialists at a district hospital. They informed her that the swelling was a result of the broken bangle pieces and required surgery. However, due to the presence of important nerves and tendons in the area, there was a risk of finger damage and loss of finger function, so surgery was not advised.

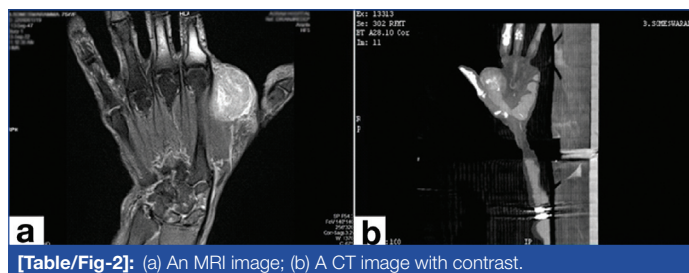
Economic reasons prevented the patient from seeking consultation at higher centres or with other specialists. Encouraged by the successful surgical care provided to a family member who had a hand swelling, the patient gained confidence and agreed to consult the same plastic surgeon. Upon examination, an oval swelling measuring 4.5×3.5 centimetres was observed in the thenar adductor space between the thumb and index finger of the left hand. The swelling was located in the subcutaneous plane and exhibited mobility. There were no signs of inflammation; the swelling was non-fluctuant, firm, and uniformly consistent. On the dorsum of the hand, the tributaries of the cephalic vein were prominent.

Transillumination yielded negative results [Table/Fig-1a,b]. MRI revealed a well-defined lesion with isotones on T1 and heterogeneously hyperintense signals on T2/STIR, with a central round heterogeneously hyperintense area measuring 4.8×4.4×3.6 cm, predominantly located in the subcutaneous plane of the interdigital space between the left thumb and index finger, extending into the volar and dorsal aspects of the hand. The possibility of a vascular anomaly was considered. The CT scan showed a well-defined, large soft tissue density lesion, predominantly located in the subcutaneous plane of the interdigital

space between the left thumb and index finger, extending into the volar and dorsal aspects of the hand, measuring approximately 4.8×4.4×3.6 cm [Table/Fig-2a,b].



[Table/Fig-1]: (a) Palmar aspect of the hand; (b) Dorsal view of the hand.

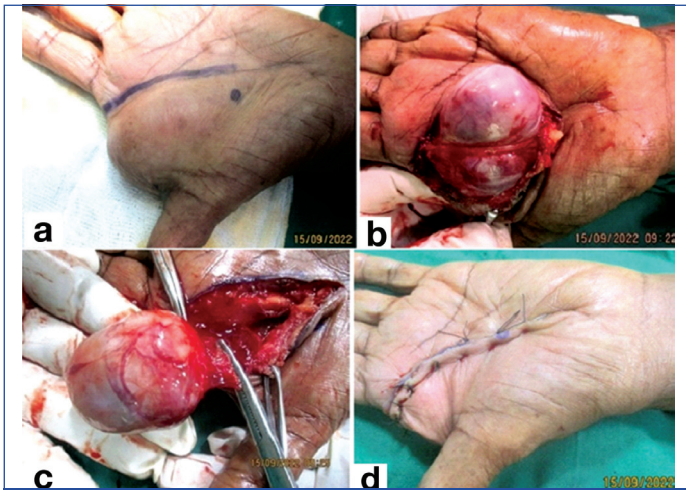


[Table/Fig-2]: (a) An MRI image; (b) A CT image with contrast.

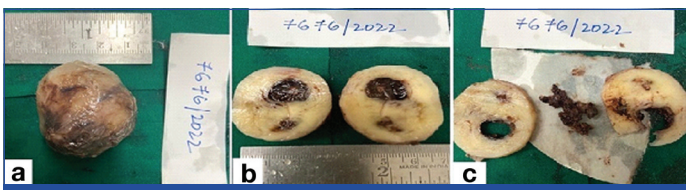
It was clinically diagnosed as an organised intramuscular haematoma, and surgery was advised. A thenar crease incision was made, and the adductor pollicis muscle was identified and stretched. By blunt dissection, the tumour was separated from the muscle fibres, and the entire tumour was carefully delivered without damaging the capsule, flexor tendons, nerves, and blood vessels. Hemostasis was secured, and after trimming the excess skin, the wound was closed, and a pressure dressing and plaster of paris slab were applied to immobilise the hand and provide rest. The surgery lasted less than 45 minutes [Table/Fig-3a-c].

Histopathological examination revealed a thick collagenous fibromuscular wall interspersed with hemorrhage and granulation tissue, consistent with the features of an intramuscular organised haematoma [Table/Fig-4(a-c),5]. Sutures were removed one week after surgery, and the patient was discharged with appropriate advice. Follow-up at six weeks and eight weeks showed good

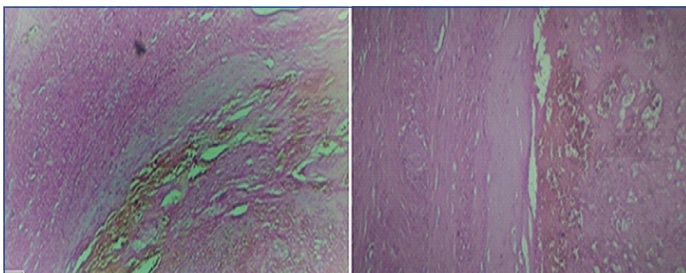
healing, and the patient reported complete satisfaction with the ability to use the hand without any problems [Table/Fig-6a,b].



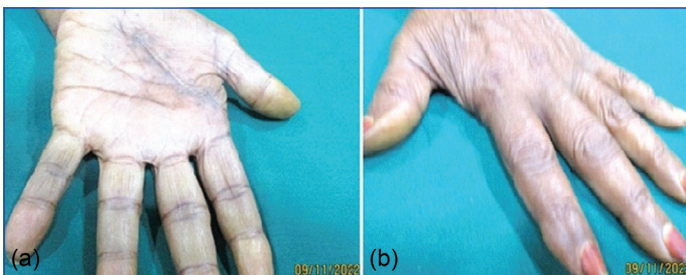
**[Table/Fig-3]:** (a) Skin incision; (b) Dissection of the swelling; (c) Excision of the swelling; (d) Wound closure.



**[Table/Fig-4]:** (a) Gross specimen; (b) Cut section; (c) Haematology and crystals.



**[Table/Fig-5]:** Photomicrograph showing thick collagenous fibromuscular wall interspersed with haemorrhage, granulation tissue (Stain- H&E, Magnification 10X (left) and 45X (right), respectively).



**[Table/Fig-6]:** (a) Postoperative volar and (b) dorsal aspects of hand.

## DISCUSSION

An organised haematoma is classified as a cystic lesion characterised by a superficial fibrotic capsule. Haematomas usually undergo reabsorption and gradually decrease in size. However, in rare cases, they may slowly increase in size, becoming chronic expanding haematomas. They are commonly found in subdural tissue, maxillary sinuses, and body cavities. Despite being benign, it is difficult to differentiate from malignant lesions because of its locally invasive nature [1].

In the present case, a round swelling was observed in the area between the thumb and index fingers of the left hand, specifically in the thenar adductor space. The swelling was located beneath the skin and exhibited mobility. No signs of inflammation were observed, and the swelling had a firm and consistent texture without any areas of fluctuation.

Surgical resection was the preferred treatment option, followed by the administration of clarithromycin. In a clinical study on chronic expanding haematomas in the extremities, such as the thigh and knee region, surgical resection along with the pseudocapsule was performed. Organised haematomas in the maxillofacial region are most frequently reported in the maxillary sinuses and less frequently in the temporomandibular joints [2]. Another study on chronic expanding haematomas in extremities found that the lower extremities were the most commonly affected, with cases reported in the thigh (four cases) and knee region (three cases). Six of these cases occurred in subcutaneous tissues, and one occurred in deeper tissue [2].

Although a few cases of organised haematomas in the long muscles of the lower limbs have been reported, no cases of this type of lesion have been reported in the small muscles of the hand or foot in the world literature [3-7]. Several theories suggest that inflammation occurs within a haematoma, which forms in the tissues of a semi-closed space. As a result, necrotic fibrosis surrounds the inflamed area of the haematoma [4,8]. Angiogenesis also occurs as a process of biological healing, where newly formed blood vessels can rupture, leading to further bleeding [9,10]. Prolonged and continuous endothelial stimulation in a chronic haematoma may contribute to neoplastic transformation. A previous report noted that angiosarcoma can arise from chronic expanding haematomas at the periphery of the pseudocapsule.

Imaging analysis is recommended in cases where it is difficult to make a differential diagnosis based solely on clinical examination and blood tests. MRI shows heterogeneous low to intermediate signal intensity. The presence of a pseudocapsule with low signal intensity on T1- and T2-weighted imaging is characteristic of chronic expanding haematomas. While a characteristic pseudocapsule can be seen on CT, in the present case, a clearly delineated, sizeable mass of soft tissue density was observed on the preoperative magnetic resonance image in the subcutaneous region between the left thumb and index finger, extending into both the palm and the back of the hand. The use of MRI is preferred for an accurate imaging diagnosis of chronic expanding haematomas.

Although the MRI diagnosis of chronic expanding haematoma is relatively straight-forward, the findings can be similar to those of hemorrhagic soft-tissue sarcomas. Careful examination of every MRI section is necessary to detect any non-hemorrhagic portions that may indicate a possible neoplasm. In addition to imaging results, clinical information such as the speed of growth is important in the diagnosis of chronic expanding haematomas [11, 12]. CT is superior to MRI in revealing bone conditions; however, it is inadequate for differentiating between benign and malignant lesions and assessing their spread. MRI is better at detecting the extent, margins, and spread of tumours. A thorough clinical examination is a prerequisite, followed by the use of imaging modalities [12].

## CONCLUSION(S)

It was concluded that a combination of imaging analysis, histopathological examination, and proper clinical examination is necessary for an appropriate diagnosis and management, which can ultimately lead to a favorable outcome.

## REFERENCES

- Bell D, Niknejad M, Gathimba K. Hematoma. Reference article. Radiopaedia.org (Accessed on 15 Jul 2023). <https://doi.org/10.53347/rID-61879>.
- Sakamoto A, Okamoto T, Matsuda S. Chronic expanding hematoma in the extremities: A clinical problem of adhesion to the surrounding tissues. *Hindawi Bio Med Research International*. 2017;2017:4634350.
- Nagata M, Isomura ET, Sawai NY, Higuchi M, Ohtani SM, Aikawa T, et al. A case of chronic expanding hematoma in the oral floor. *J Oral Maxillofac Surg Med Pathol*. 2015;27:131-34. Doi: 10.1016/j.ajoms.2013.11.001.
- Lee C, Yook JI, Han SS. Organized hematoma of temporomandibular joint. *Imaging Sci Dent*. 2018;48:73-77. Doi:10.5624/isd.2018.48.1.73.

- [5] Cho YA, Kwon IJ, Kim SM, Myoung H, Lee JH, Lee SK. A rare pediatric variant of organized hematoma in the maxillary sinus. *J Oral Maxillofac Surg Med Pathol.* 2015;27:544-49. Doi:10.1016/j.ajoms.2014.11.002.
- [6] Pang W, Hu L, Wang H, Sha Y, Ma N, Wang S, et al. Organized hematoma: An analysis of 84 cases with emphasis on difficult prediction and favorable management. *Otolaryngol Head Neck Surg.* 2016;154:626-33. Doi: 10.1177/0194599815625956.
- [7] Choi SJ, Seo ST, Rha KS, Kim YM. Sino nasal organized hematoma: Clinical features of seventeen cases and a systematic review. *Laryngoscope.* 2015;125:2027-33. Doi:10.1002/lary.25200.
- [8] Okada K, Sugiyama T, Kato H, Tani T. Chronic expanding hematoma mimicking soft tissue neoplasm. *J Clin Oncol.* 2001;19(11):2971-72.
- [9] Cho YA, Kwon IJ, Kim SM, Myoung H, Lee JH, Lee SK. A rare pediatric variant of organized hematoma in the maxillary sinus. *J Oral Maxillofac Surg Med Pathol.* 2015;27:544-49. Doi: 10.1016/j.ajoms.2014.11.002.
- [10] Omura G, Watanabe K, Fujishiro Y, Ebihara Y, Nakao K, Asakage T, et al. Organized hematoma in the paranasal sinus and nasal cavity-imaging diagnosis and pathological findings. *AurisNasus Larynx.* 2010;3(7):173-77. Doi: 10.1016/j.anl.2009.06.009.
- [11] Negoro K, Uchida K, Yayama T, Kokubo Y, Baba H. Chronic expanding hematoma of the thigh. *Joint Bone Spine.* 2012;79(2):192-94.
- [12] Imaizumi S, Mortia T, Ogose A, Hotta T, Kobayashi H, Ito T, et al. Soft tissue sarcoma mimicking chronic hematoma: Value of magnetic resonance imaging in differential diagnosis. *J Orthop Sci.* 2002;7(1):33-37.

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