Endovascular Embolization of Chest Wall Elastofibroma with Spontaneous Bleeding: Case Report & Literature Review

WONG Hei Tung Jamie, SALAMIN Lisley, FUNG Sin Yue Cindy, HO Man To Jason, LI Jing Woei, LAM Cheuk Kwan, LO Bill Archie

Department of Radiology, Tseung Kwan O Hospital, Hong Kong SAR

OBJECTIVE

Retrospective review of a rare case of elastofibroma with spontaneous bleeding treated with endovascular embolization.

Elastofibroma dorsi is a benign soft tissue tumour located in the infra or subscapular region where surgical treatment is rarely indicated unless the lesion is enlarging and symptomatic.

INTRODUCTION

- A 79 year-old lady was noted to have sudden onset severe ecchymosis of the left trunk in the rehabilitation unit, one-month post admission for a trochanteric hip fracture, treated via hip neurolysis.
- She was originally on warfarin for rheumatic aortic stenosis post mechanical heart valve replacement, and was also started on bridging low molecular weight heparin (LMWH) for peri-operative optimisation in preparation for possible fixation later due to sub-optimal pain control despite neurolysis, and wish for improve mobility.
- **Indication for urgent endovascular embolization: transfusion-refractory anemia and subsequent hypovolemic shock.**

LITERATURE REVIEW

CLINICAL PRESENTATION

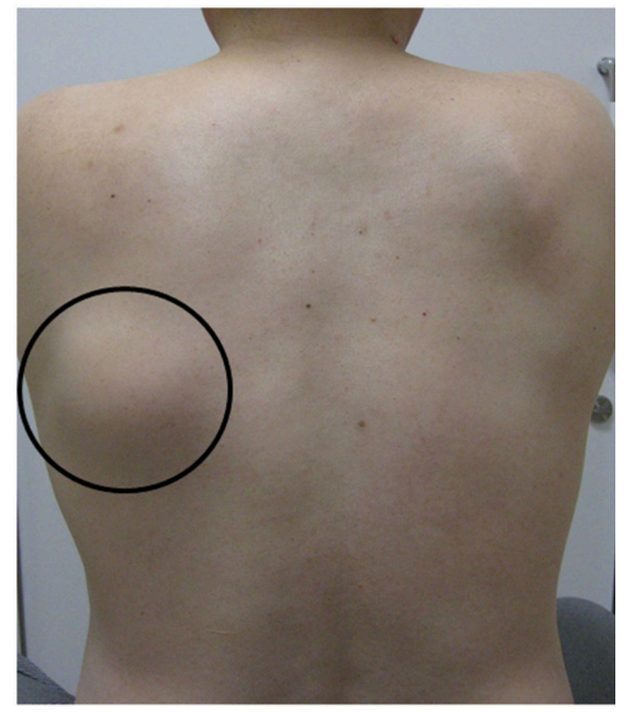


Figure 1. A left subscapular elastofibroma dorsi exaggerated by anteposition of the bilateral scapula

KEY FEATURES

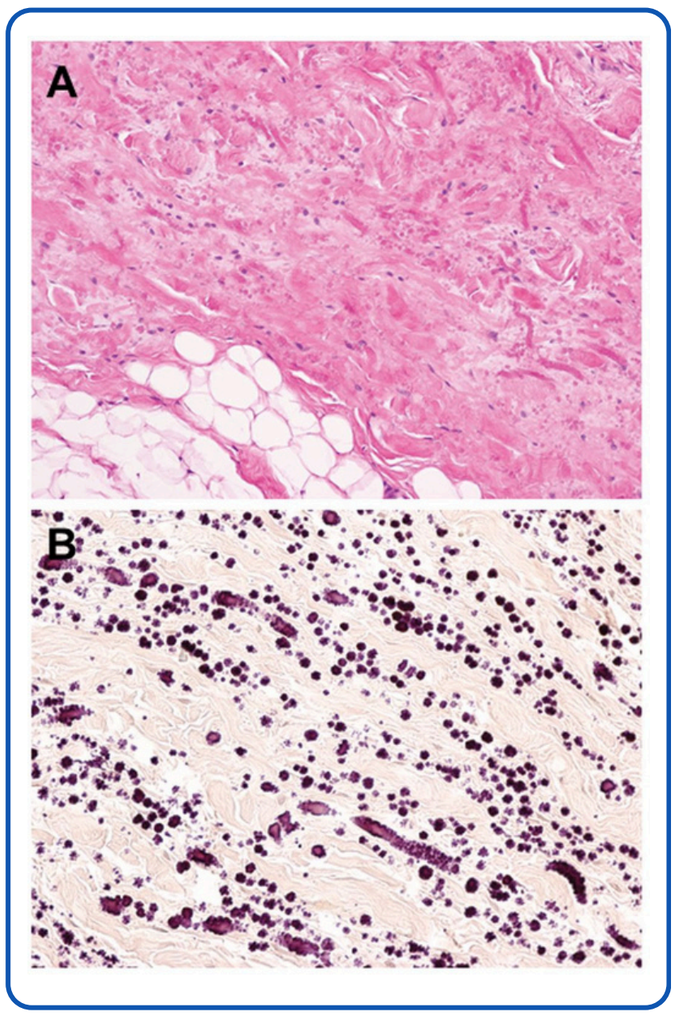
- Benign, solid, slow growing connective tissue tumour
- Location: Deep sub-scapular region (93%), **Bilateral** (54%)
- Demographics: **Female,** age 50 to 60
- Etiology: **Aging, familial / genetics** (DNA sequence loss, transforming growth factor b, basic fibroblast growth factor etc.)
- **Asymptomatic** , or palpable mass when size reach signficance



PATHOLOGY SPICIMEN

Figure 2.
Cut surface of a surgical specimen

- Variegated appearance
- Mixture of grey-white fibrous tissue and intervening yellow fatty tissue



HISTOLOGY SPECIMEN

Figure 3A. Fibro-collagenous tissue with variable amount of mature adipose tissue (hematoxylin & esoin stain) **Figure 3B.** Numerous globules and abnormal elastic fibres (elastica van Gieson stain)

Figure 1 to 3B: Reference from NISHIO, J., NAKAYAMA, S., NABESHIMA, K., & YAMAMOTO, T. (2021). Current Update on the Diagnosis, Management and Pathogenesis of Elastofibroma Dorsi. Anticancer Research, 41(2211-2215). https://doi.org/10.21873/anticanres.14997

ENDOVASCULAR EMBOLIZATION OF CHEST WALL ELASTOFIBROMA WITH SPONTANEOUS BLEEDING: CASE REPORT & LITERATURE REVIEW

WONG Hei Tung Jamie, SALAMIN Lisley, FUNG Sin Yue Cindy, HO Man To Jason, LI Jing Woei, LAM Cheuk Kwan, LO Bill Archie

將軍澳醫院 Tseung Kwan O Hospital

IMAGING FEATURES

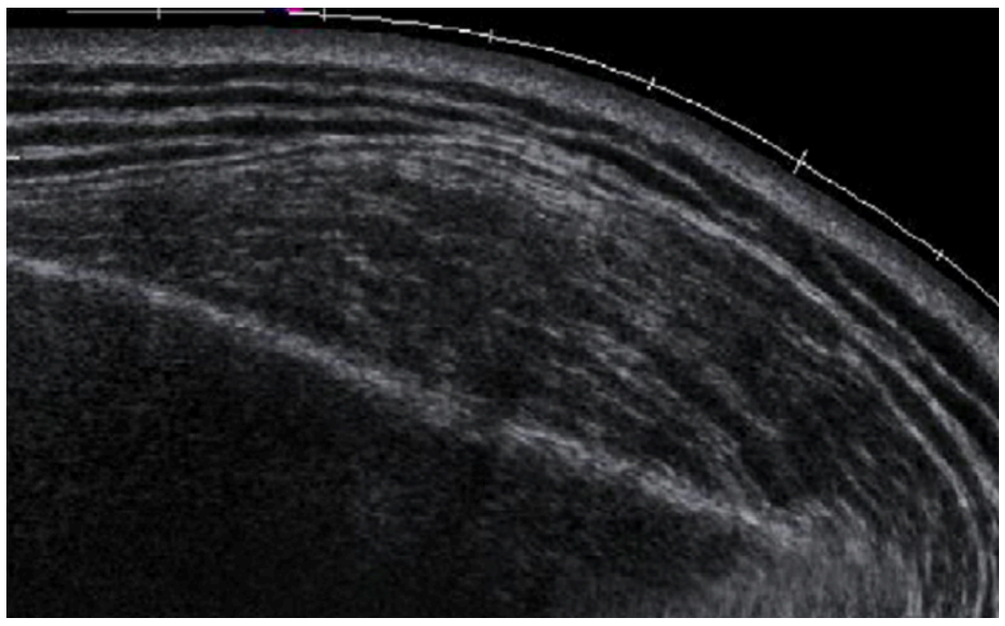


Figure 4. Type I USG pattern

ULTRASOUND

Figure 4. A lenticular circumscribed heterogeneous echoic soft tissue mass with fasciculated aspect for interlaced hypoechoic and hyperechoic strands corresponding to fibroblastic and fat tissue.

USG PATTERNS

Type I (54%) Inhomogeneous fasciculated
Type II (22%) Inhomogeneous aspecific
Type III (15%) Hyperechogeneous
Type IV (9%) Hypoechogeneous

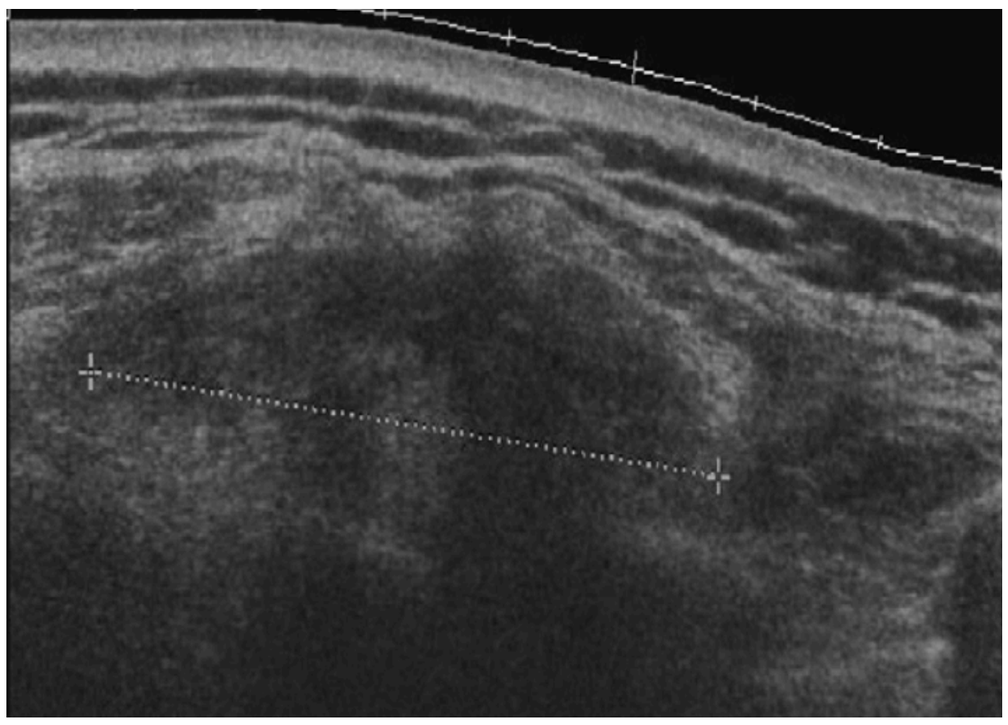


Figure 5. Type IV USG pattern

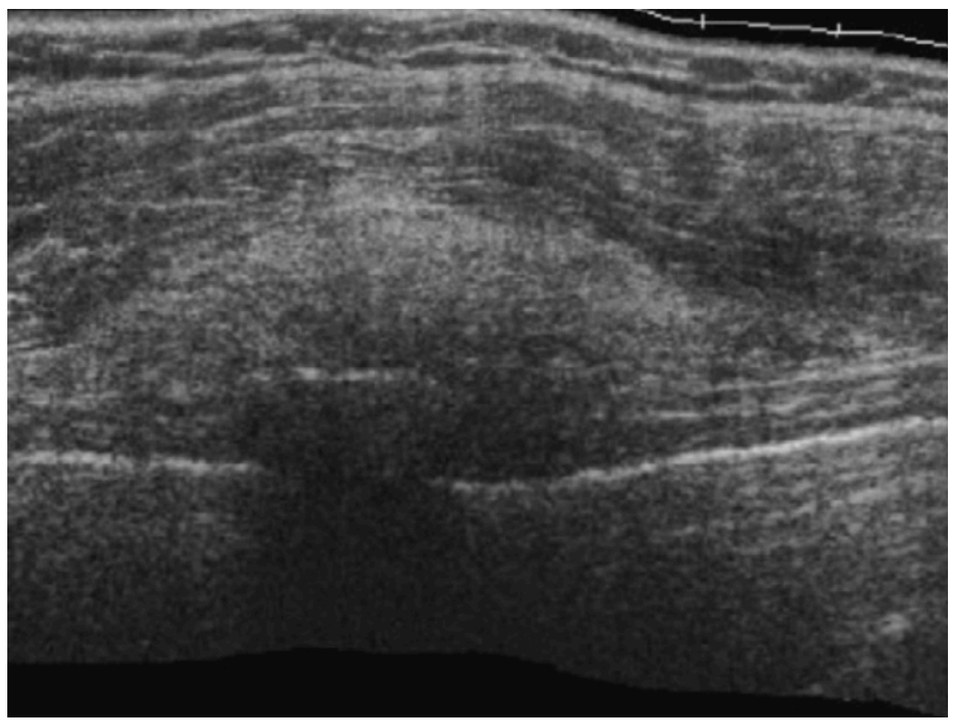


Figure 6. Type III USG pattern

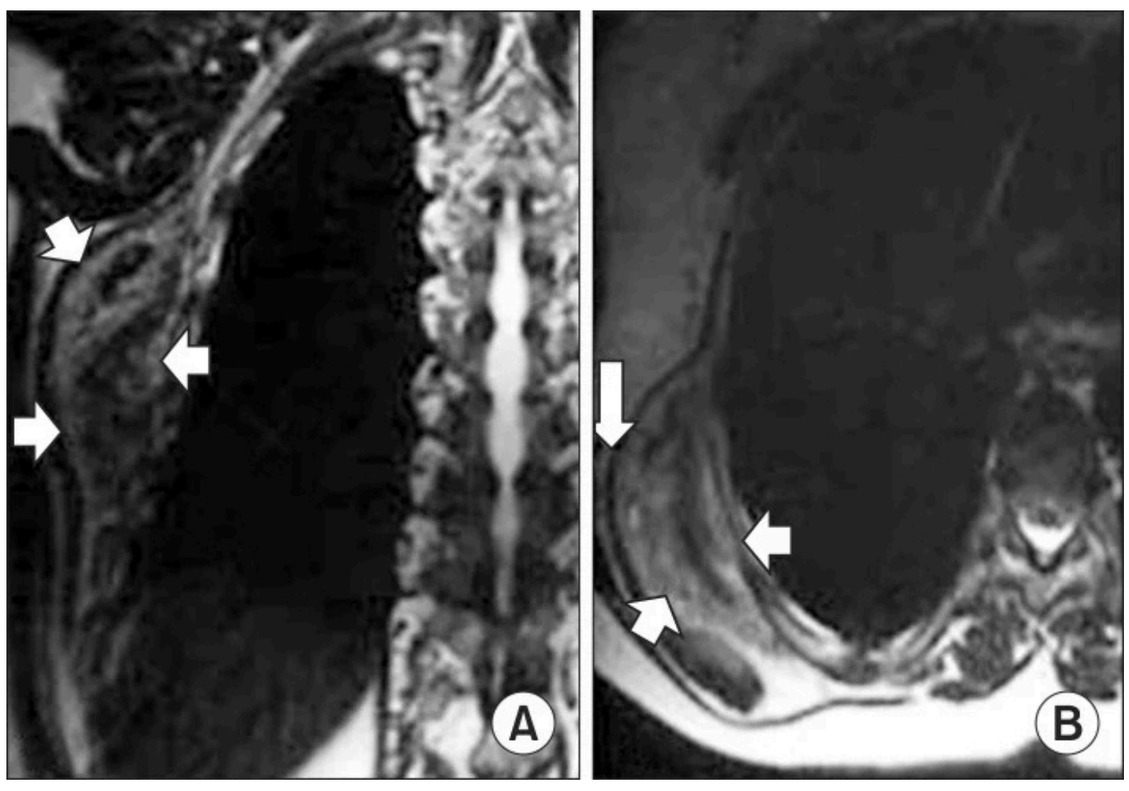


Figure 7. MRI axial & sagittal, T1W

MAGNETIC RESONANCE IMAGING

Figure 7. MRI images axial and sagittal, T1-weighted

- Heterogeneous, lenticular, poorly circumscribed mass deep into the muscles and adjacent to the chest wall
- Intermediate signal intensity similar to adjacent skeletal muscle, with interspersed linear areas of increased signal intensity similar to fat

Figure 4 to 7: Reference from Battaglia, M., Vanel, D., Pollastria, P., Balladelli, A., Alberghini, M., Monti, C., Staals, E., & Galletti, S. (2009). Imaging patterns in elastofibroma dorsi. European Journal of Radiology, 72(16-21). https://doi.org/10.1016/j.ejrad.2009.05.024

ENDOVASCULAR EMBOLIZATION OF CHEST WALL ELASTOFIBROMA WITH SPONTANEOUS BLEEDING: CASE REPORT & LITERATURE REVIEW

WONG Hei Tung Jamie, SALAMIN Lisley, FUNG Sin Yue Cindy, HO Man To Jason, LI Jing Woei, LAM Cheuk Kwan, LO Bill Archie

將軍澳醫院 Tseung Kwan O Hospital

PERI-OPERATIVE CT

Figure 8, 9, 10 . Plain, Delayed & Arterial phase (Axial)

Bilateral discoid mass with skeletal muscle attenuation in keeping with elastofibroma dorsi, both located adjacent to periosteum, but deep to serratus anterior and latissimus dorsi. Right side measures 7cm (cranial-caudal) shows peripheral enhancement but no evidence of active bleeding

Venous pooling on delayed phase images suggestive of active contrast extravasation on the left side (red arrow).

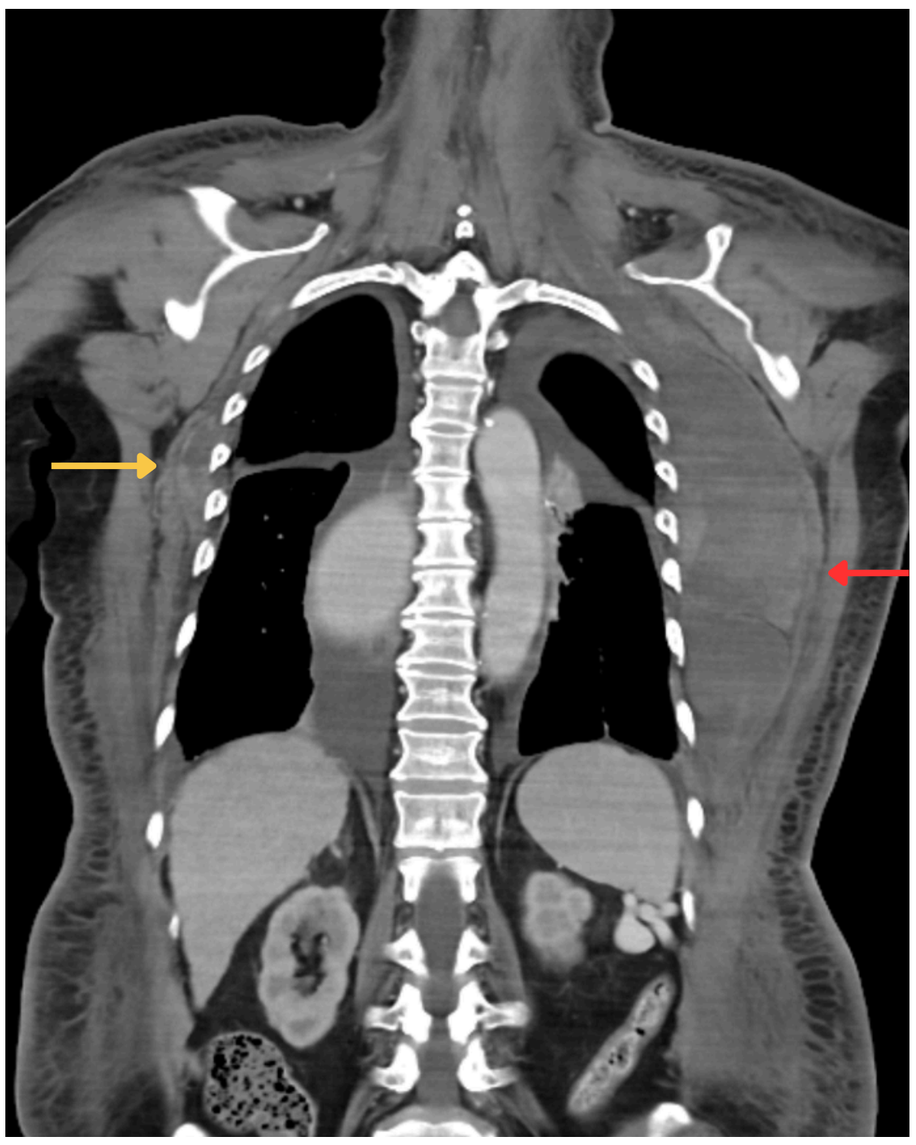


Figure 11. Venous phase (Coronal)

Left elastofibroma with hematoma centering over left posterolateral chest wall at subscapular and infrascapular levels from T3 down to T11 measures 18cm (cranial-caudal) (red arrow), right elastofibroma without complications (yellow arrow)

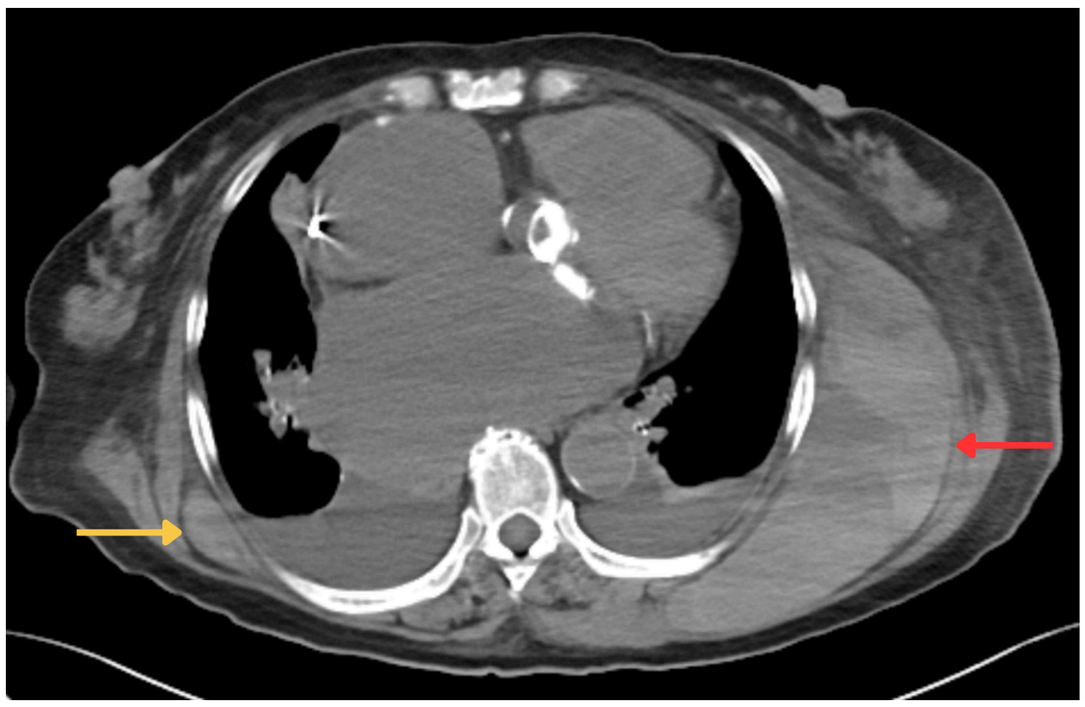


Figure 8. Non-contrast scan: right sided elastofibroma (yellow arrow) , left sided elastofibroma with bleeding (red arrow)



Figure 9. Delayed phase showing active contrast extravasation (red arrow)

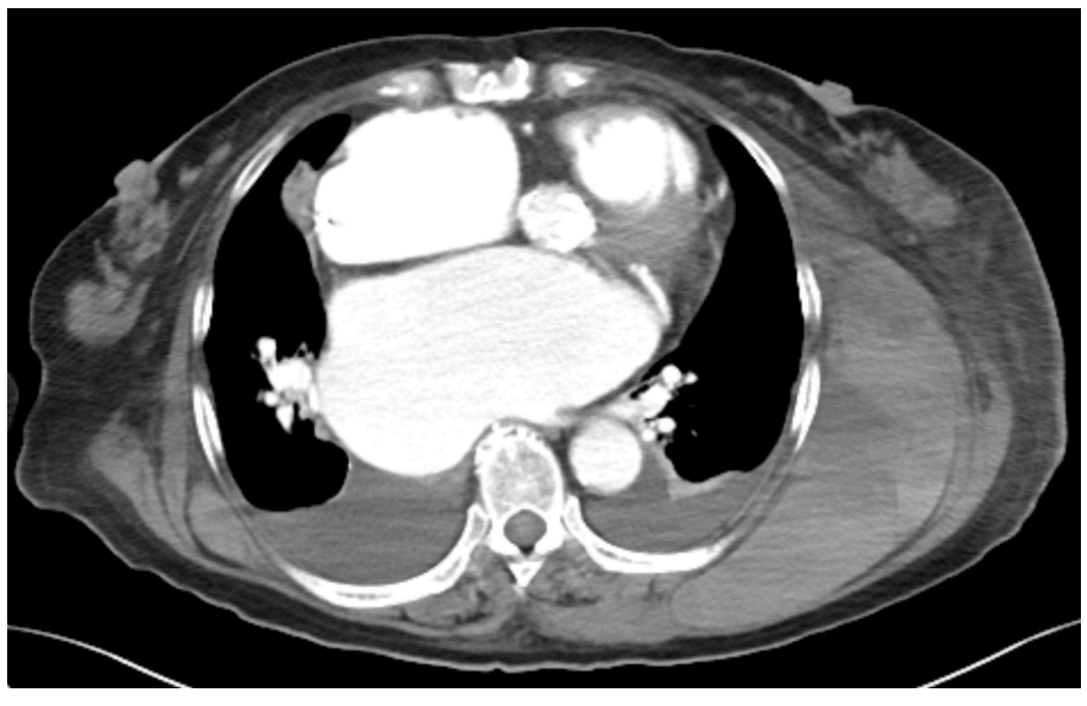


Figure 10. Arterial phase

ENDOVASCULAR EMBOLIZATION OF CHEST WALL ELASTOFIBROMA WITH SPONTANEOUS BLEEDING: CASE REPORT & LITERATURE REVIEW

WONG Hei Tung Jamie, SALAMIN Lisley, FUNG Sin Yue Cindy, HO Man To Jason, LI Jing Woei, LAM Cheuk Kwan, LO Bill Archie

將軍澳醫院 Tseung Kwan O Hospital

OPEREATIVE IMAGES

Left subclavian arteriogram performed via right transfemoral approach with 5F H1 catheter.

Initial aortogram showed minimal delineation of intercostal arteries.

Subclavian arteriogram showed blushing and delayed contrast extravasation at the left chest wall elastofibroma / hematoma.

Figure 11. *Aortogram* showing minimal delineation of intercostal arteries

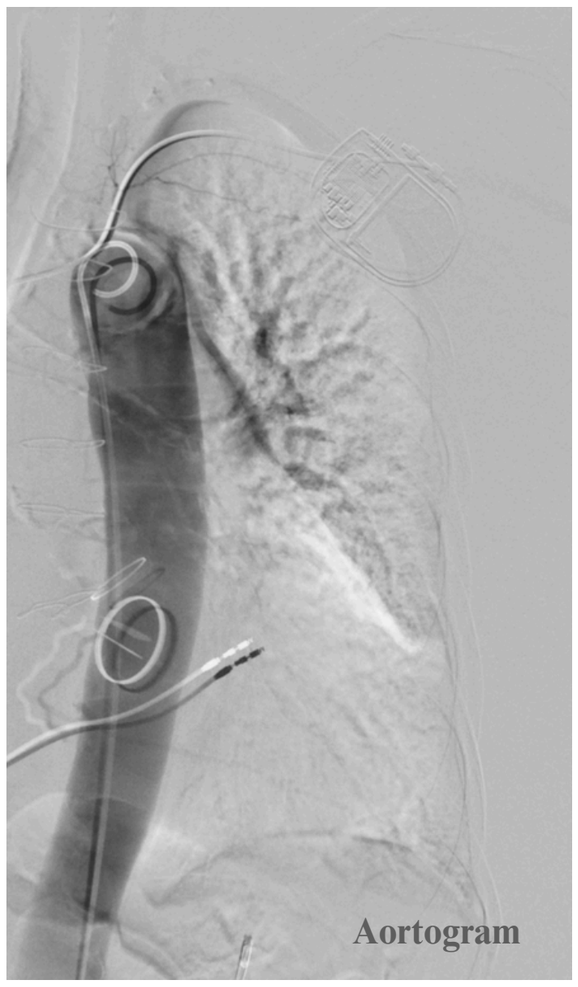
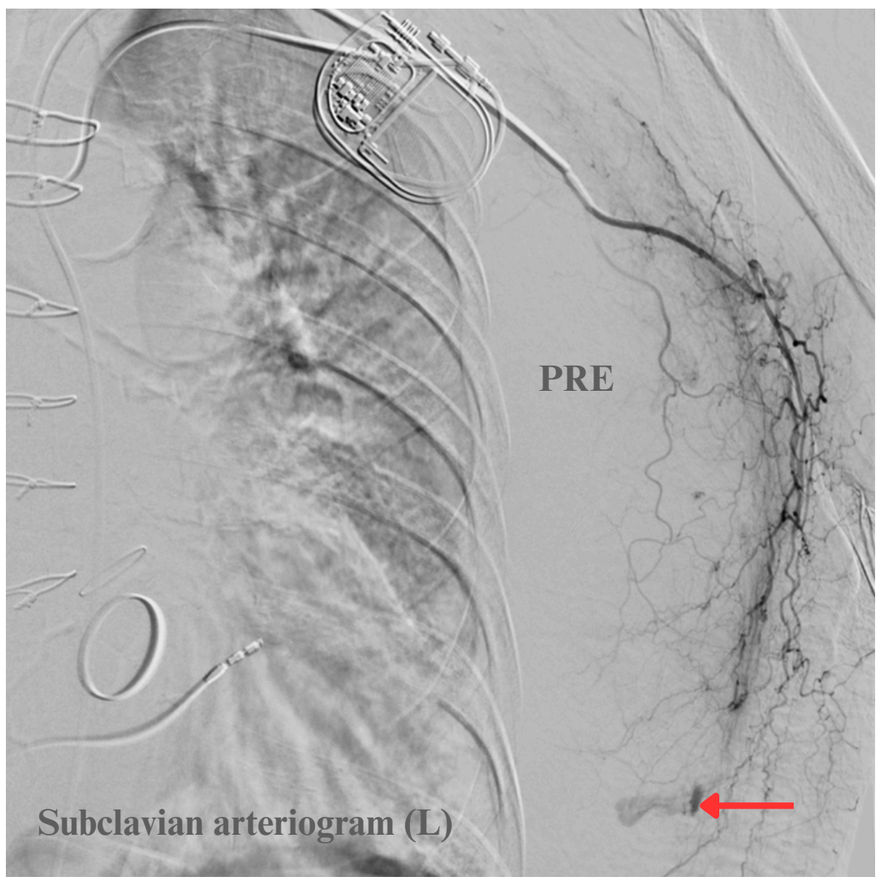


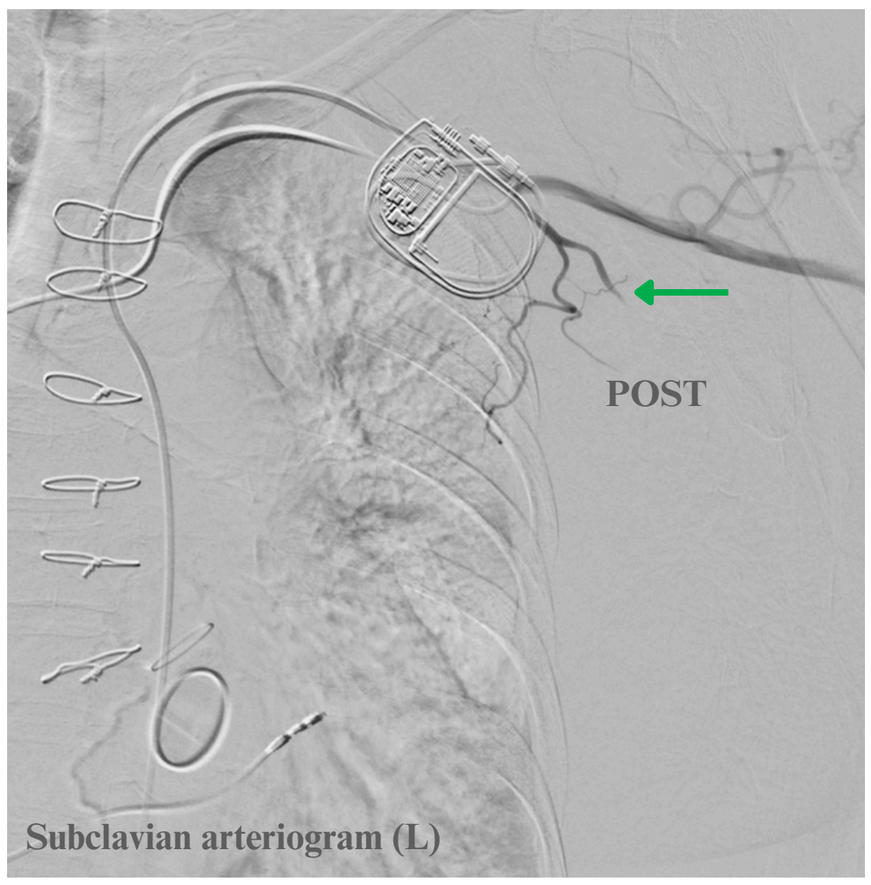
Figure 12. *Pre-embolization* showing delayed contrast extravasation at the left chest wall elastofibroma (red arrow)

Super-selective Gelfoam (EGgel 1000-1400 um) embolization of the left thoracodorsal artery until complete hemotasis.

No procedural-related complications noted.

Figure 13. *Post-embolization* showing trucation of thoracodorsal artery with no further blushing (green arrow). Axillary artery, and branch of the subscapular artery (circumflex scapular) remain patent





CONCLUSION

This case highlights a rare case of elastofibroma dorsi presenting with bleeding, which was successfully managed with endovascular Gelfoam embolization. Radiologists should maintain a high index of suspicion in the appropriate clinical setting and consider diagnostic angiogram to guide optimal management.

REFERENCES

1. NISHIO, J., NAKAYAMA, S., NABESHIMA, K., & YAMAMOTO, T. (2021). Current Update on the Diagnosis, Management and Pathogenesis of Elastofibroma Dorsi. Anticancer Research, 41(2211-2215). https://doi.org/10.21873/anticanres.14997
2. Ali Deveci , M., Serdar Ozbarlas , H., Eren Erdogan, K., Sunkar Biçer, O., Tekin, M., & Ozkan , C. (2017). Elasto broma dorsi: Clinical evaluation of 61 cases and review of the literature. Acta Orthopaedica et Traumatologica Turcica, 51(7-11). https://doi.org/10.1016/j.aott.2016.10.001
3. Battaglia, M., Vanel, D., Pollastria, P., Balladelli, A., Alberghini, M., Monti, C., Staals, E., & Galletti, S. (2009). Imaging patterns in elastofibroma dorsi. European Journal of Radiology, 72(16-21). https://doi.org/10.1016/j.ejrad.2009.05.024