***Case report***

**Uterine Lipoleiomyoma Presenting With Postmenopausal Hemorrhage and Pulmonary Embolism: A Rare Case Report**

**Abstract**

**Lipoleiomyoma consists of variable proportions of mature lipocytes and smooth muscle cells. Uterine lipomatous tumors, including lipoleiomyomas- which is an extremely rare benign variation of leiomyoma. This case study aims to report and analyse a rare case of uterine lipoleiomyoma presenting as postmenopausal bleeding. Here we present a case of a 61 years old female, menopaused over 10 years, the patient initially had her first episode of postmenopausal bleeding 5 years ago however subsequently defaulted her follow up. Rare lipomatous uterine tumors can be difficult to diagnose. In conclusion, optimally resected lipoleiomyoma has shown no documented disease recurrence.**

**Keywords: Uterine Lipoleiomyoma, Postmenopausal, Bleeding, Tumour**

**INTRODUCTION**

Uterine lipomatous tumors, including lipoleiomyomas- which is an extremely rare benign variation of leiomyoma. Lipoleiomyoma consists of variable proportions of mature lipocytes and smooth muscle cells. Unlike conventional leiomyomas in which the size somewhat declines after menopause, uterine lipoleiomyomas are characterized by progressive enlargement even after menopause [1,2]. We report a case of uterine lipoleiomyoma because of its rarity. Their reported incidence varies from 0.03 to 0.2% [3].

**CASE HISTORY**

Here we present a case of a 61 years old female, menopaused over 10 years, The patient initially had her first episode of postmenopausal bleeding 5 years ago however subsequently defaulted her follow up. She presented this time with hypovolemic shock from massive postmenopausal bleeding requiring resuscitation. During the hypovolemic event, her uterus was equivalent to a 30 weeks size gravid uterus, non tender, firm, mobile, and regular margin, with no other organomegaly. Pelvic examination was unremarkable except for some fullness at the Pouch of Douglas.

Bedside ultrasonography showed a grossly enlarged uterus with well demarcated heterogenous hyperechoic mass occupying the endometrial cavity. There were no adnexal masses or free fluid. Endometrial sampling was attempted however came back as non-representative sampling. A CT scan imaging which was done showed large lobulated mass extending from the pelvis to the upper abdomen, measuring 14.0cm(AP) x 20.6cm(W) x 20.0cm(CC), which had predominantly fat content with ill-defined enhancing components within. Coarse calcifications were seen within this lesion and it was well-encapsulated within a thick enhancing wall. (Figure 1) An incidental finding of pulmonary embolism was also diagnosed. The patient was then subjected to diagnostic ultrasound guided biopsy of the mass which only reported fat - containing lesion.

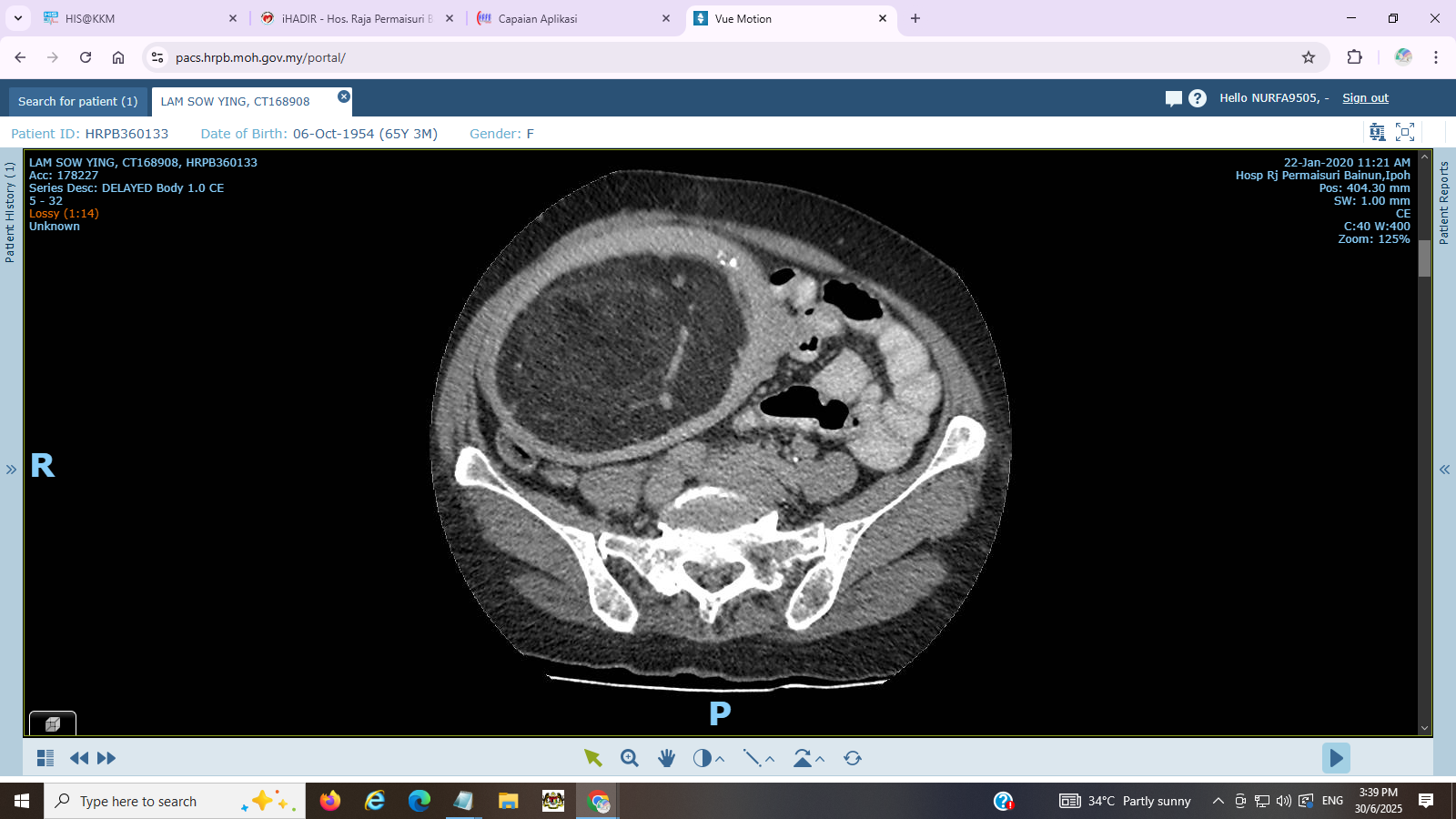


Figure 1: CT scan demonstrated a large lobulated mass, which had predominantly fat content with ill-defined enhancing components within.

She underwent total abdominal hysterectomy bilateral salphingoophorectomy after a course of anticoagulant. Intraoperatively, the uterus was equivalent to 24 weeks size of a gravid uterus. The dissected specimen revealed a huge well - circumscribed posterior intramural firm fibro-fatty mass measuring 18 x 23 x16 cm pushing the endometrial cavity anteriorly. It is 1mm away from the nearest serosa. It had patchy areas of fibrotic tissues. There was no obvious area of haemorrhagic necrosis, or calcification. The endometrium was grossly normal and the uninvolved endomyometrium measured 15-20mm in thickness. (Figure 2)

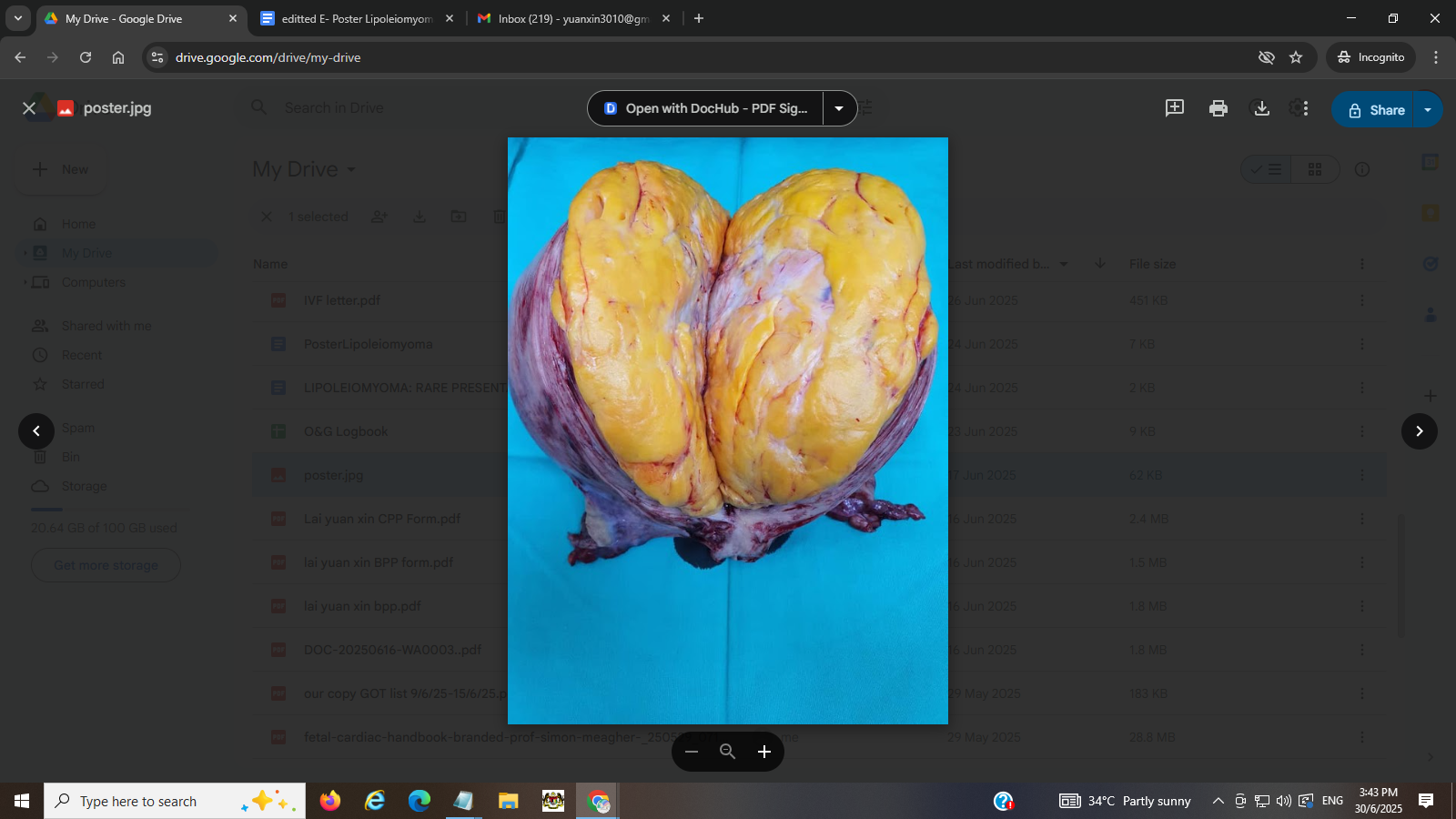


Figure 2: Cut section of intramural firm fibro-fatty mass

Histopathology examination revealed uterine lipoleiomyoma. The intramural mass is composed of mainly mature fat cells without nuclear atypia mixed with bland, spindle - shaped smooth muscle cells in a whorled pattern. The rest of the study was normal.

The patient recovered well post surgery and was discharged from the gynaecology clinic after review.

**DISCUSSION**

The patient’s final diagnosis of uterine lipoleiomyoma, though rare, is actually the most common variant of leiomyomas in post-menopausal women (85.7%) [2]. Based on the World Health Organisation publication, variant forms of leiomyomas accounted for about 10% of total leiomyomas [4]. Generally accepted pathogenesis of lipoleiomyoma could be either from lipomatous metamorphosis of a pre-existing leiomyoma [5] or lipomatous tissue arise from direct transformation of smooth muscle cells or transformation of totipotent mesenchymal cells within the uterine myometrium [1]. In both conditions, lipoleiomyomas formation was attributed to conditions of low oxygen / [hypoxia](https://www.sciencedirect.com/topics/medicine-and-dentistry/hypoxia), or serum starvation [1]. Given that the majority of patients are postmenopausal women, it is hypothesized that abnormal intracellular storage of lipids may be promoted by a variety of lipid metabolic disorders or other related problems that are linked to estrogen insufficiency could contribute to lipomatous metaplasia [7]. Microscopically, the tumor is composed of mainly mature fat cells without nuclear atypia mixed with bland, spindle-shaped smooth muscle cells in a whorled pattern like in this patient (Figure 3).

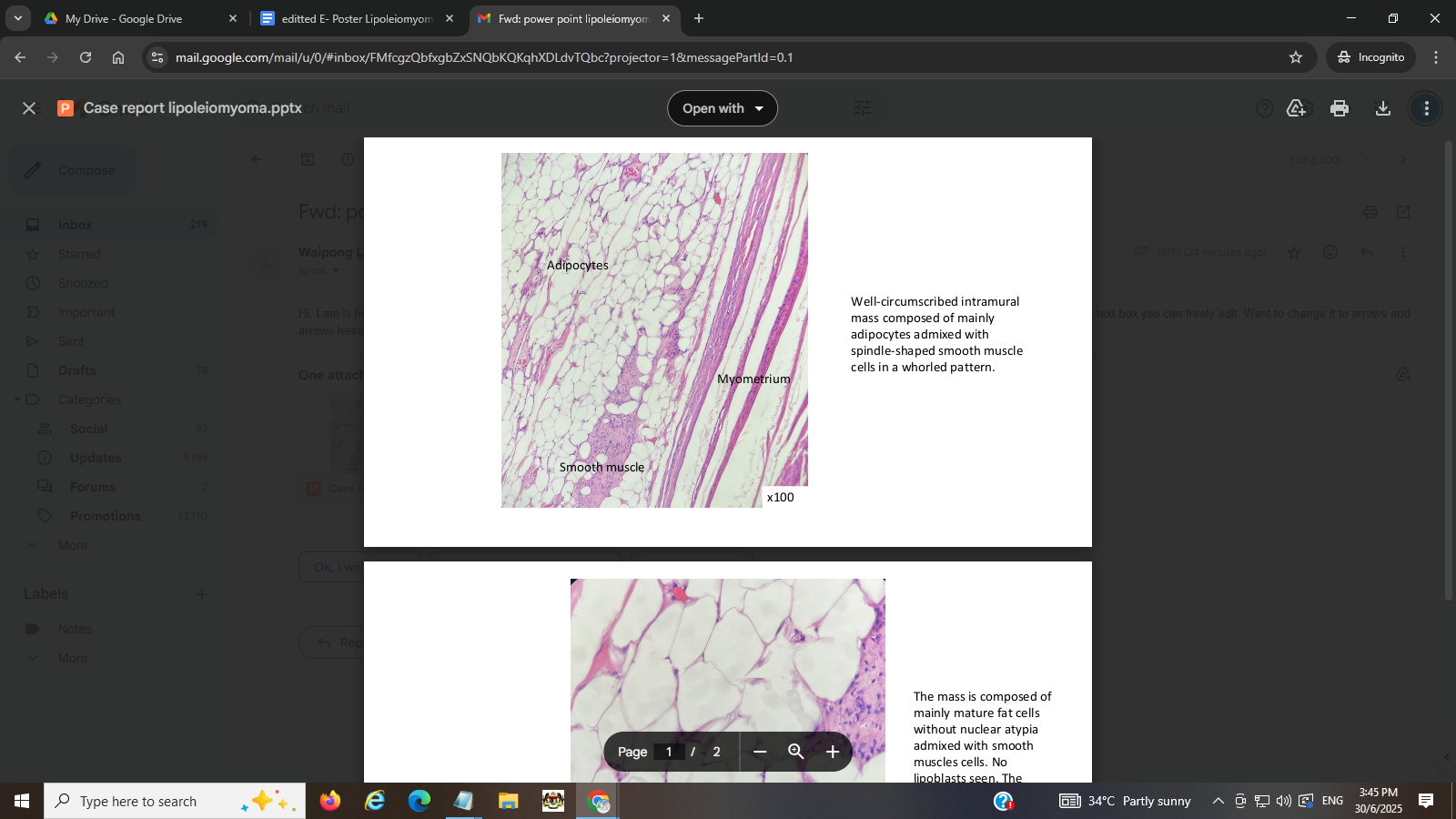
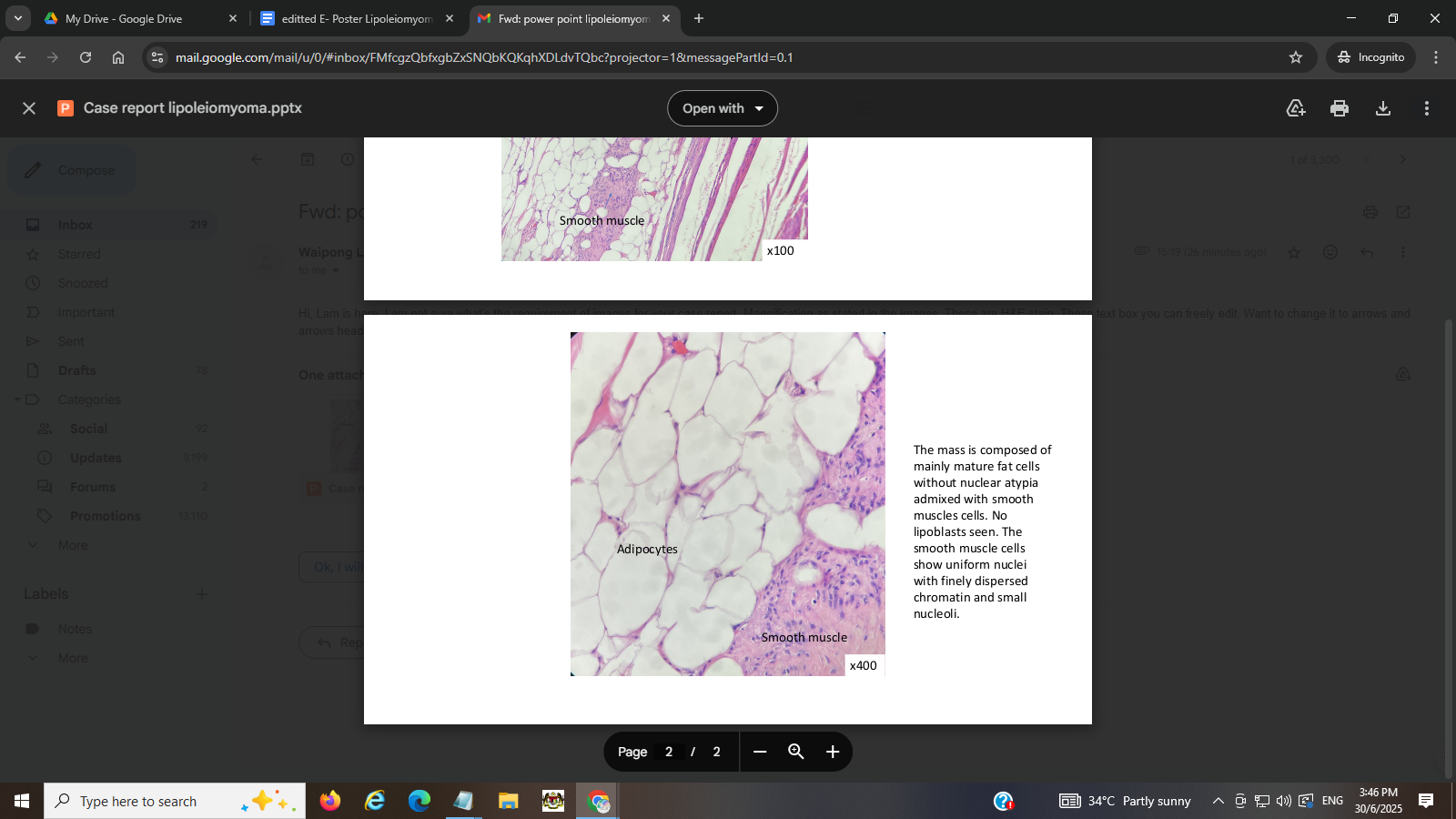
3A 3B

Figure 3A: Well-circumscribed intramural mass composed of mainly adipocytes admixed with spindle-shaped smooth muscle cells in a whorled pattern. Figure 3B:The mass is composed of mainly mature fat cells without nuclear atypia admixed with smooth muscles cells. No lipoblasts seen. The smooth muscle cells show uniform nuclei with finely dispersed chromatin and small nucleoli.

Rare lipomatous uterine tumors can be difficult to diagnose. The common presenting complaint of uterine lipoleiomyoma would be progressive uterine enlargement with postmenopausal bleeding mimicking the presentation of leiomyosarcoma. Our patient however presented with massive postmenopausal bleeding resulting in shock and pulmonary embolism. The inconsistent abdominal finding of the initial presentation and final specimen may suggest intrauterine blood collection during the presentation.

In most cases CT demonstrated heterogenous fat lesions with the limitation of missing out on the detailed uterine anatomy [8]. Further evaluation with MRI has been described to differentiate liposarcoma from benign lipoma. Lipoleiomyoma can be detected on MRI by looking for homogeneous adipose tissue and a few thin, identifiable septa. A thick nodular septum of 2 mm or more, nonfatty regions, significant hyperintense areas on T2-weighted imaging, and prominent spots on contrast enhancement are all characteristics of well-differentiated liposarcoma on MRI [9]. Nevertheless, histopathological examination is required for definitive diagnosis.

The management dilemma was made worse with the patient having pulmonary embolism which would subject the patient to high risk immediate surgery and the anti-coagulant started could have worsened her uterine bleeding. A nationwide study in Taiwan has shown that there is an increased association of venous thromboembolism in women with uterine leiomyoma [10], however to date there is no literature reporting the association of rare lipoleiomyoma with VTE. In this case the possible cause could be venous stasis from mechanical compression to iliac veins/inferior vena cava, causing pulmonary embolism in sequelae. A limited case series of VTE with uterine leiomyoma has been reported where it involves a multidisciplinary decision making based on the patient’s parity, safety considerations around bleeding and surgery timing [11]. Several treatments have been proposed for thrombosis control, including immediate anticoagulant, thrombolectomy, inferior vena cava filter [12]. In her case, given the uncertainty in diagnosis and lack of availability of interventional radiology service, anticoagulant was initiated for a short duration prior to definitive treatment. Rarely, small, asymptomatic lipoleiomyomas do not require treatment and can be managed conservatively similar to leiomyomas .

**CONCLUSION**

Even though lipoleiomyomas have low malignant potential, patients may present with severe symptoms and the rapid growing tumour size would make clinician suspicious of malignant uterine tumours. Hysterectomy would be commonly offered to post-menopausal women with such symptoms and final histopathological examination would confirm the diagnosis of this benign condition. Optimally resected lipoleiomyoma has shown no documented disease recurrence.

Consent

As per international standards or university standards, patient(s) written consent has been collected and preserved by the author(s).

**CONFLICT OF INTEREST**

The authors declare that there is no conflict of interest.

Disclaimer (Artificial intelligence)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

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