CASE REPORT

Uterine cavernous haemangioma in a post-menopausal woman: CT and MRI findings mimicking uterine myoma with degeneration

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ABSTRACT. Cavernous haemangioma is a very rare vascular malformation of the uterus. We describe the CT and MRI findings of a cavernous haemangioma in an 81-year-old female with recurrent menorrhagia. CT showed a well-marginated mass with multifocal calcifications and extensive haemorrhage, as well as necrosis in the anterior wall of the uterus. MRI revealed heterogeneous low- to high-signal intensities of the mass on T_1 and T_2 weighted images as well as portions with poor enhancement of the mass on contrast-enhanced T_1 weighted images. Although rare, cavernous haemangioma should be included in the differential diagnosis of a calcified haemorrhagic necrotic uterine mass in post-menopausal women.

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Uterine cavernous haemangiomas are very rare [1]. Fewer than 10 cases have been reported in the English language literature. Most reports have described rare cases of cavernous haemangiomas of the uterus in pregnant women and reviewed the published literature [2]. The diagnosis of cavernous haemangioma is not usually suspected clinically, but rather made incidentally at delivery. The symptoms include uncontrolled bleeding during operative delivery, recurrent menorrhagia and abdominal pain.

To our knowledge, other than the case described by Kobayashi et al [3], CT and MRI findings of this lesion have not been reported until now. Furthermore, there have been no previous reports of cavernous haemangioma in post-menopausal women. Therefore, we report the imaging findings of this rare lesion, manifested as a calcified and haemorrhagic uterine mass, in a post-menopausal woman

Case report

An 81-year-old female presented with recurrent menorrhagia and abdominal pain and mass with varying severity for the past 8 years. Physical examination revealed a palpable large, hard mass in the abdominopelvic cavity. All of the laboratory parameters, including tumour markers, were within normal limits, except for haemoglobin (10.9 g dl^{-1}), which revealed mild anaemia. A non-contrast enhanced CT scan showed a large, well-defined round mass with multifocal punctate calcifications and extensive haemorrhage (Figure 1a). A contrast enhanced CT scan showed a mainly cystic mass with extensive haemorrhage and solid portions with poor enhancement (Figure 1b). A small amount of free fluid was present in the pelvic cavity. MRI revealed a mass with heterogeneous high-signal intensity on both T_1 and T_2 weighted images, attributable to a cyst containing necrotic or proteinous materials, arising from the anterior wall of the uterus. The T_1 and T_2 weighted images showed multifocal heterogeneous low- and high-signal intensities within the mass, suggesting haemorrhage (Figure 2a–c). Contrast-enhanced fat-suppressed T_1 weighted images showed solid portions with enhancement at the peripheral portion of the mass (Figure 2d). On the basis of the above findings, uterine myometrial-originated mass, such as a myoma with degeneration and leiomyosarcoma, were suggested.

Surgical findings revealed a semi-solid, pinkish coloured uterine mass of approximately 28 cm in size. Total hysterectomy and bilateral oophorectomy were performed. Grossly, the cut surface revealed marked haemorrhage, necrosis and friable solid portions having numerous dilated vascular structures with thrombosis (Figure 3). Microscopic examination revealed extensive vascular ectasia, as well as large vessels with packed red blood cells and foci of thrombosis, lined by a flattened endothelium (Figure 4). Immunohistochemistry revealed diffuse positive staining for the endothelial markers, CD-34 and CD-31, in the flattened endothelial cells, as well as focal positive staining for the lymphatic vessel marker, D2-40. The histological diagnosis was a cavernous haemangioma of the uterus.

Discussion

Vascular tumours are rare in the female genital tract, particularly in the uterus. The uterine wall is partly or

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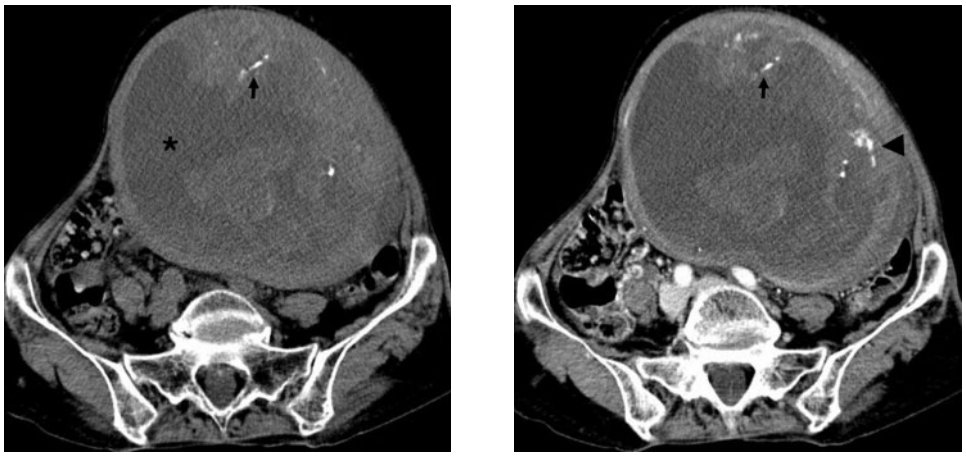
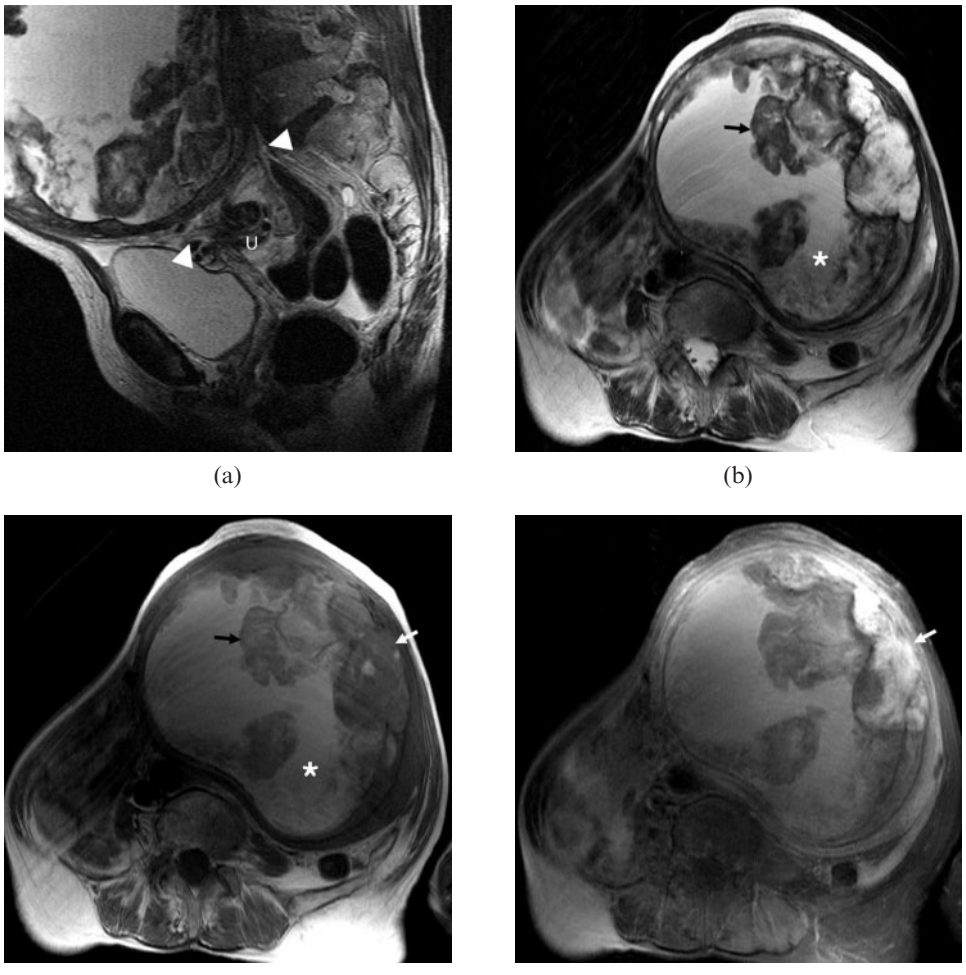


(a) (b)

Figure 1. (a) Non-enhanced CT scan showing a large, well-defined round mass with multifocal punctuate calcifications (arrow) and extensive haemorrhage (*). (b) Contrast-enhanced CT scan showing a mainly cystic mass with extensive haemorrhage and solid portions with poor enhancement (arrowhead).

completely transformed into cavernous vessels that results from a proliferation of arterial and venous vessels of various sizes with fistula formation, which later replaces the normal myometrium [1–3]. Cavernous haemangioma is very rare, with fewer than 10 cases reported [2]. It is found incidentally at the time of delivery in pregnant



(a) (b)

(c) (d)

Figure 2. (a) Sagittal T_2 weighted images showing a mass arising from the anterior wall (white arrowhead) of the uterus (U). (b–d) T_1 and T_2 weighted images showing heterogeneous high-signal intensity owing to the cyst with necrotic or proteinic components (*) within the mass. Multifocal heterogeneous low- and high-signal intensity is revealed, suggesting haemorrhage (arrow). There is an enhanced solid portion (white arrow) within the peripheral portion of the mass.

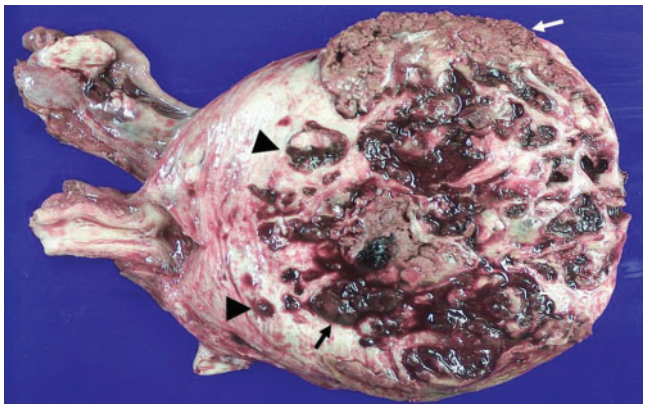


Figure 3. A gross specimen displaying marked haemorrhage (arrow) and necrosis, and friable solid portions (white arrow) showing numerous dilated vascular structures with thrombosis (arrowhead).

women. To our knowledge, this is the first case demonstrating imaging findings of a cavernous haemangioma in post-menopausal women, although one such case in a 24-year-old woman has been reported [3].

Cavernous haemangiomas are predominantly found in women and can occur at any age. They can be either congenital or acquired. Rare cases of uterine haemagiomas associated with hereditary syndromes such as hereditary haemorrhagic telangiectasia and Klippel–Trénaunay–Weber syndrome have been reported [4]. Histologically, uterine haemangiomas can be categorised into a capillary or a cavernous type. The capillary type demonstrates small sized capillary vessels that are usually localised in the endometrium, whereas the cavernous type is composed of large dilated vascular channels, and diffusely involves the uterus [4–6]. Clinical symptoms associated with cavernous haemangiomas include uncontrolled bleeding during caesarean or vaginal delivery, abdominal pain and/or tendency to collapse during pregnancy. It carries a significant risk for the mother as well as the baby, as previously described [5, 6]. However, in gynaecological practice, these patients mainly present with recurrent menorrhagia, as seen in our case. It is usually found incidentally at delivery, but

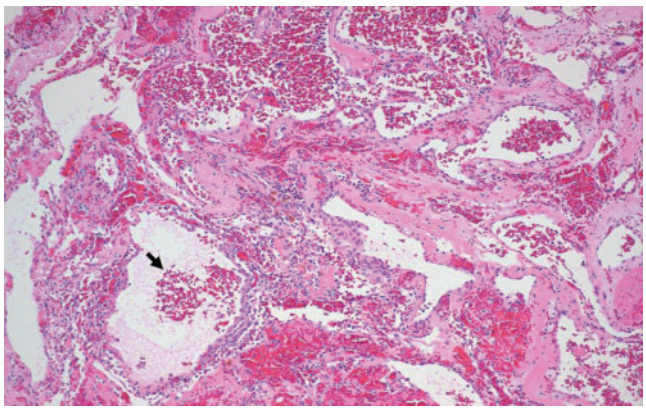


Figure 4. Microscopic examination (haematoxylin and eosin stain) revealing extensive vascular ectasia and large vessels with packed red blood cells (arrow), lined with a flattened endothelium. Histological diagnosis is a cavernous haemangioma of the uterus.

can occasionally be large and symptomatic, like our case. The diagnosis of cavernous haemangioma is not usually suspected clinically. It can be initially diagnosed by ultrasound examination, which shows a thickened uterine wall composed of cavernous fluid-filled spaces with turbulent flow [7–9].

Kobayashi et al [3] described the ultrasound, CT and MRI findings of a 19-year-old woman with cavernous haemangioma of the uterus. CT showed a 10 cm sized mass with numerous small calcifications. T_2 weighted images of the patient revealed the mass to be of notably high-signal intensity with focal spotty areas of low-signal intensity, which were poorly enhanced on the contrast-enhanced T_1 weighted images, suggesting that these imaging findings would be helpful in the diagnosis of large cavernous haemangioma of the uterus [3]. In contrast, in our study, both the CT and MRI images did not show characteristic imaging findings of haemangioma owing to the presence of multifocal calcifications and extensive haemorrhages within the mass. Non-enhanced CT was sensitive to the detection of small amounts of calcification. The haemorrhages showed discrete high- and low-signal intensity on T_1 and T_2 weighted images, respectively. Whereas, the extensive necrosis showed diffuse heterogeneous high-signal intensities on all T_1 and T_2 weighted images. Sagittal T_2 weighted images were helpful in detecting the mass arising from the anterior uterine wall by demonstrating a beak-like protrusion from the uterus.

The differential diagnosis for a uterine mass with calcification, necrosis or haemorrhage usually includes myoma with degeneration and leiomyosarcoma. 60% of large myomas show some form of degeneration. Secondary dense, amorphous calcifications occur in the hyaline tissue in about 4% of patients, particularly in post-menopausal women. Haemorrhage and necrosis of the myoma usually occurs after uterine artery embolisation, and are regarded as separate from red degeneration. These have also been demonstrated to be more important in the diagnosis of sarcomatous change [7, 8]. Leiomyosarcoma is usually represented as a massive uterine mass with irregular contour, extensive necrosis, as well as haemorrhage. Foci of calcifications may be present. Leiomyosarcoma is suspected if rapid enlargement occurs, especially during the post-menopausal phase [8].

Conclusion

We report a case of cavernous haemangioma of the uterus presenting as a calcified, haemorrhagic and necrotic mass. Although the exact tissue characterisation of haemangioma cannot be made using pre-operative CT and MRI, cavernous haemangioma should be included in the differential diagnosis of a calcified, haemorrhagic or necrotic uterine mass in post-menopausal women.

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