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Case report

Cervicovaginal cellular angiofibroma

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SUMMARY

Cellular angiofibroma is a rare type of benign mesenchymal tumour that arises mostly in middle-aged women. It needs to be distinguished from other neoplasms and has a predilection for the vulvovaginal region. To our knowledge, this is the first case of a cervical cellular angiofibroma. A 34-year-old nulligravid woman was referred with a large mass bulging in the fornix posterior. Ultrasound scanning and MRI showed a large solid mass projecting in the pouch of Douglas. Laparoscopic surgical excision was performed. Histopathological examination showed a well-demarcated, unencapsulated tumour, consisting of short fascicles of spindle cells in-between thick-walled medium-sized vessels. On immunohistochemistry, there was strong reactivity with antibodies against CD34 and oestrogen receptor. Angiofibromas are benign mesenchymal tumours mostly occurring in middle-aged women. They can cause abnormal swelling and uterine bleeding and need to be distinguished from other (malignant) neoplasms.

BACKGROUND

Cellular angiofibroma (CA) is a rare benign soft tissue tumour that can be found in both male and female patients but mostly affects middle-aged women.[1–4] It is most commonly found in the distal genital region and is generally well circumscribed and small sized.[3] The differential diagnosis should include other (malignant) tumours and a distinction is made based on histopathological and immunohistochemical characteristics.[5 6] Complete local excision is the treatment of choice for this type of tumour.[5 7] Recurrence has only been described in one case.[8] Metastasis, however, has not been reported, not even in tumours with atypical histopathology or sarcomatous transformation.[3] To our knowledge, this is the first case of a cervical angiofibroma, as this tumour is known for its predilection for the vulvovaginal region.

CASE PRESENTATION

A 34-year-old nulligravid woman was referred to our academical medical centre with a large vaginal mass. She was seen in the emergency room 1 month earlier with a newly self-discovered mass in the vagina, an incidental finding while showering. She mentioned only a slight feeling of pressure in the vagina before discovering the mass but denied any symptoms of pain or abdominal swelling. She stated to have had intermittent vaginal spotting over the last few weeks.

The patient had no remarkable medical or surgical history, apart from a laparoscopically removed benign ovarian cyst. There was no family history of breast, ovarian or endometrial cancer.

INVESTIGATIONS

The abdominal examination did not reveal any abnormalities. There was no abdominal swelling or pain. On vaginal examination, a large mass was palpable in the fornix posterior. Speculum investigation revealed a finger-shaped and easy-bleeding mass in the posterior fornix.

Transvaginal ultrasound showed a uterus in anteverted and anteflexed position with a large mass presumably arising from the posterior wall of the uterus and growing through the posterior fornix (figures 1 and 2). The lesion was identified as homogeneous hypoechogenic and presented with a regular outer contour and some internal shadowing. There was one feeding blood vessel. No adnexal abnormalities were seen. These characteristics suggested a benign cervical mass, favouring the diagnosis of a leiomyoma.

MRI of the abdomen was additionally performed and a solid mass of 5 cm, projecting in the pouch of Douglas (figures 3 and 4A,B) was identified. A preferred diagnosis of an exophytic subserosal cervical leiomyoma was made.

As the findings on medical imaging together with the patient's age were reassuring, the chance of malignancy became less probable. A biopsy was already taken during a vaginal examination at the referring hospital. The anatomopathological (AP) examination confirmed the diagnosis of a benign mesenchymal tumour, but no further subclassification was possible at the time.

TREATMENT

The patient consented for a combined laparoscopic and vaginal surgery to remove the vaginal mass. Possible conversion to laparotomy was discussed. As the tumour was located close to the ureters, a bladder catheter and bilateral ureteric stents were inserted at the start of the procedure.

The laparoscopy revealed a large mass at the posterior wall of the uterus, protruding into the pouch of Douglas. The mass was well delineated, smooth and mobile, which made manipulation of the mass easier. Simultaneously with the laparoscopy, a Hulka Uterine elevator was placed vaginally and anterior and posterior side speculums were placed around the mass. Via applying pressure on both the speculums, it was possible to delineate the mass in the pouch of Douglas. Subsequently, using laparoscopic scissors, the mass was circumcised, the

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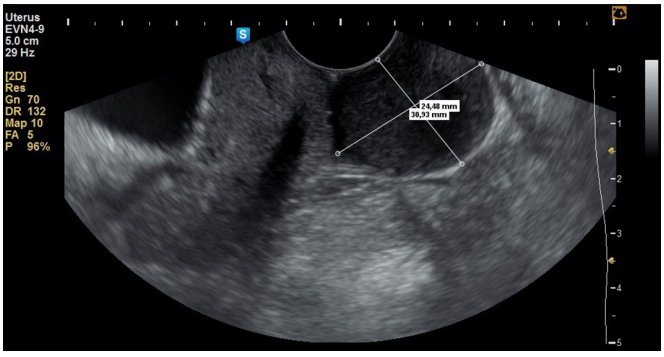

Figure 1 Transvaginal ultrasound imaging. Sagittal view of a mass on the posterior side of the uterus.

vaginal wall was opened and further excision of the mass laterally was completed. The mass could then be removed vaginally and sent for AP. Before ending the procedure, the vaginal wall in the fornix posterior was closed with Vicryl 1. Complete removal of the mass was obtained with good haemostasis. Bladder catheter and ureteric stents were removed at the end of the procedure.

No frozen section was performed perioperatively as the preoperative biopsy showed no apparent signs of malignancy. AP showed a well-delineated, unencapsulated soft tissue tumour in the subepithelial stroma of the exocervix (figure 5A). The tumour contained many thick-walled to thin-walled vessels. Between these vessels, there were short fascicles of monotonous appearing spindle-shaped cells, aligned by fine collagen bundles (figure 5B). No atypia was seen. A few mitotic figures were found. Based on the morphology, the differential diagnosis included angiomyofibroblastoma, leiomyoma, schwannoma and CA, as those tumours can be highly vascular and can consist of fascicularly arranged spindle-shaped tumour cells. Immunohistochemistry was performed to result in a final diagnosis. The tumour cells showed expression of CD34 and oestrogen receptor (ER) on immunohistochemistry (figure 5C,D), while S100, SMA and desmin were negative. The negative immunohistochemical staining for S100, SMA and desmin excluded the diagnosis of leiomyoma and a schwannoma. As CD34 and ER were expressed, while desmin remained negative, the immunohistochemical profile favoured the diagnosis of a CA.[9]

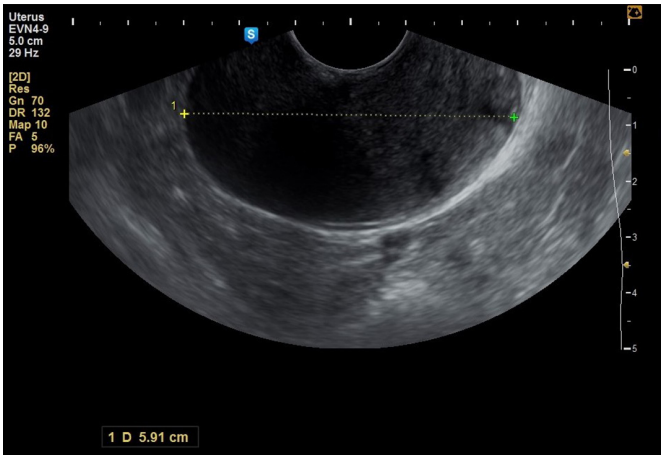

Figure 2 Transvaginal ultrasound imaging. Transverse view of the mass with a maximum diameter of 5.91 cm.

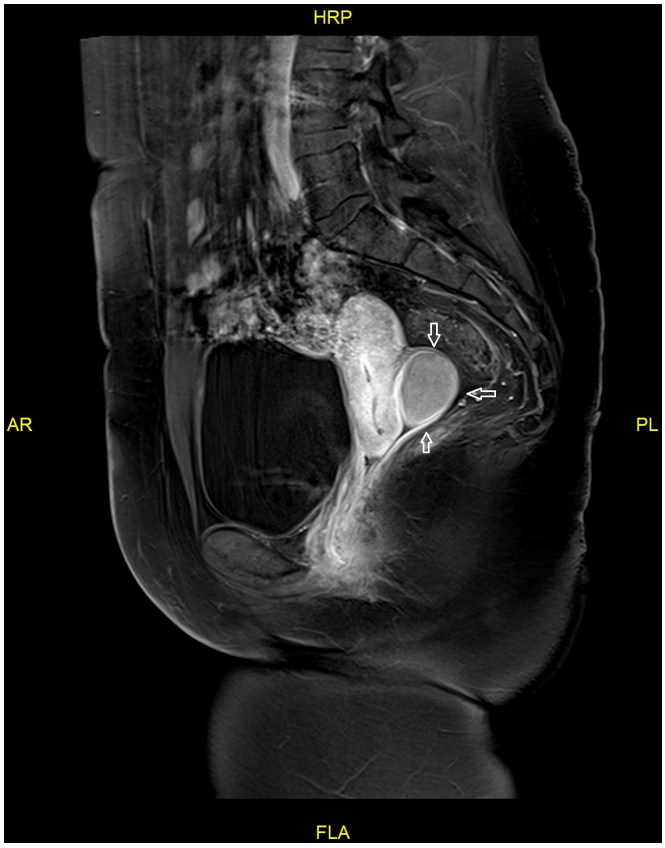

Figure 3 Sagittal view of the abdomen and pelvis on MRI T1-weighted imaging with fat saturation, postgadolinium administration. Note the solid soft tissue mass of 5 cm length on the posterior side of the uterus, projecting in the pouch of Douglas. The mass is outlined by arrows. AR, anterior right; PL, posterior left; FLA, feet down (longitudinal axis); HRP, head up.

OUTCOME AND FOLLOW-UP

The postoperative check-up was performed 6 weeks after surgery. Apart from mild renal tenderness shortly after the procedure, with spontaneous resolution, no problems had occurred postsurgery. The patient reported no more vaginal bleeding or vaginal

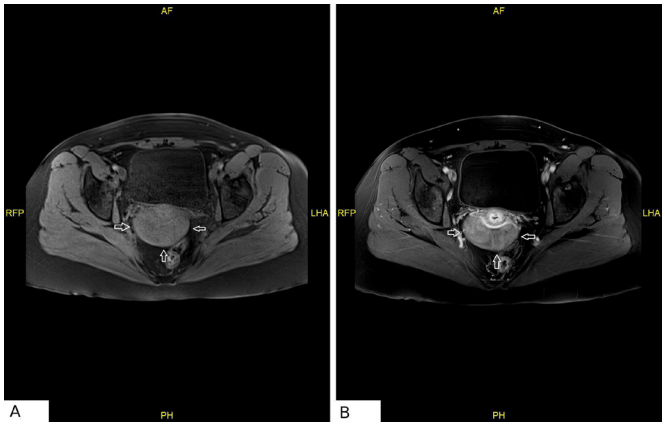

Figure 4 Transverse view of the abdomen and pelvis on MRI T1-weighted imaging with fat saturation. The mass is visualisable on the posterior side of the uterus, outlined by the arrows. (A) Pregadolinium administration. (B) Postgadolinium administration. AF, anterior; PH, posterior; RFP, right side (frontal plane); LHA, left side (horizontal axis).

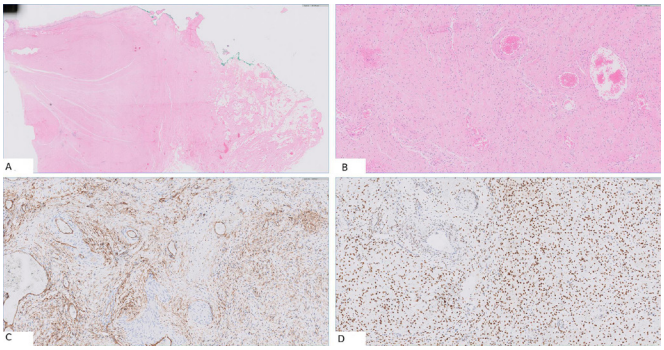

Figure 5 Histopathological examination and immunohistochemistry. (A) H&E overview (magnification ×1): well-demarcated tumour in the subepithelial stroma of the exocervix. (B) H&E detailed view (magnification ×20) of the spindle-shaped tumour cells between thick-walled vessels. (C) CD34 (immunohistochemistry, magnification ×20). (D) Oestrogen receptor (immunohistochemistry, magnification ×20).

swelling. On vaginal examination, the vaginal wall had healed well without signs of infection.

As recurrence or metastasis has not yet been described, there are no guidelines concerning the follow-up of patients with CA. We advised an annual follow-up. There are no contraindications for future pregnancy or vaginal delivery.

DISCUSSION

CA is a rare benign soft tissue tumour that mostly occurs in the distal genital region. It was first described in 1997 by Nucci *et al* and has an equal predilection in both men and women.[1 3 5 7 8 10 11] In female patients, CA most frequently arises in middle-aged women, although over the last few years, multiple case reports have described cases of angiofibromas occurring in women of different age groups.[2 12]

Angiofibromas are benign mesenchymal tumours, generally well circumscribed and small sized.[5 6] They are mostly asymptomatic and typically slow growing, gradually increasing in size over 1–2 years, causing a delay in seeking medical advice until long after the onset of the tumour. The most common site for CA is the vulvovaginal region (particularly the labium majorum and vulva) and therefore, it is usually preoperatively diagnosed as a Bartholin cyst.[2 5] Cases with only vaginal involvement or even extragenital locations have been described.[11]

In this case report, however, we describe a mass originating from the cervix. When asymptomatic, a CA can be an incidental finding on clinical examination. In our case, the patient was alarmed by vaginal swelling and intermittent blood loss for a few weeks, until the diagnosis of the cervicovaginal mass.

From a pathological point of view, the diagnosis of CA is based on a combination of histopathological appearance and immunohistochemical markers. Both are well described in the literature. CA is a well-demarcated, though unencapsulated tumour consisting of short fascicles of uniform spindle-shaped cells. Between the fascicles, interspersed delicate collagen bundles are found. Moreover, numerous medium-sized thick-walled vessels are found. The number of mitotic figures can vary from few to many.[2 4–8 10 11 13] Immunohistochemistry on CA is not very specific. About 55% of these tumours express CD34 on immunohistochemistry, whereas only 20%–25% express smooth muscle actin and 8% express desmin. There is no expression of S100.[4–8 10 11 13 14] In addition, 50% of these tumours express the ER and progesterone receptor (PR).[4–8 12 14]

Diagnosing a CA can be challenging, as morphological similarities with other soft tissue tumours exist. Therefore, a differential diagnosis must be considered.[3–14] The use of immunohistochemistry can help to determine cell differentiation and possible path of pathogenesis, favouring one diagnosis of the differential diagnoses.

The differential diagnoses of CA are solitary fibrous tumour, leiomyoma, angiomyofibroblastoma and deep aggressive angiomyxoma.[3–14] Solitary fibrous tumours have a rather haemangiopericytoma-like vasculature and have alternating zones of cellularity. On immunohistochemistry, these tumours will typically express STAT6 with high specificity.[5 7 11] Leiomyomas have longer fascicles and fewer thick-walled vessels. Expression of desmin and H-caldesmon is usually seen on immunohistochemistry.[5–7] Angiomyofibroblastomas also have alternating zones of cellularity, but these vessels are rather capillary sized. CD34 expression on immunohistochemistry is typically absent.[5 6 11 13 14] Lastly, deep (aggressive) angiomyxoma is distinguished from CA by its hypocellularity, myxoid background and infiltrative border.[6 11]

Besides the morphology and immunohistochemistry, other aspects need to be taken into account when posing the differential diagnosis. One of these aspects is the location of the tumour, which has already been briefly discussed. Depending on the location of a CA, patients may be preoperatively be misdiagnosed with, for example, Bartholin's cyst (labia), vulvar cyst, lipoma, pedunculated leiomyoma and so on.[5 6 12] Clinical features such as pain, bleeding, illness should also be taken into account when making the differential diagnosis.

The tumour cells of CA are of a fibroblastic lineage, based on morphological, immunohistochemical and electron microscopical findings in the literature. Up to now, it is still unclear from which cells CA originates.[4–8 12 14] A about 55% of all CAs express CD34 in the tumour cells on immunohistochemistry, a CA might derive from mesenchymal stem cells.[15] In contrast, in 50% of the cases, the tumour cells express ER and PR on immunohistochemistry. As such, CA might derive from the subepithelial mesenchymal cells of the lower female reproductive tract. The presence of ER and PR expression supports the hypothesis of a possible hormonal pathogenic aetiology. However, other CA cases do not show ER and PR expression and their role remains to be proven. The pathogenesis of CA remains unclear.[4–8 12 14] In some cases, an abrupt transition to areas of sarcomatous transformation may occur, but the biological significance and the pathogenesis of this transformation remain unclear.[3 5 10] Further research on these subjects is necessary and still ongoing.[4]

The treatment of choice for this type of tumour is a complete local excision by 'shelling out' of the mass, also in cases of

Learning points

- Cellular angiofibroma is a rare benign mesenchymal tumour of the distal genital region.
- It occurs mostly in middle-aged women, although cases in other age groups have been described.
- Slowly growing, asymptomatic tumours. Presentation is usually with discomfort or pain from vaginal swelling or abnormal bleeding.
- Differential diagnosis with locally aggressive tumours is important, for example, the aggressive angiomyxoma.
- Complete local excision is the treatment of choice, apart from a single case recurrence and metastasis are not yet described.

atypia and/or sarcomatous transformation, as these characteristics do not seem to predispose to a malignant or aggressive biological behaviour and recurrences. Apart from one exception, no cases of recurrences or metastasis have been reported to date. Complete local excision appears to be adequate and effective in preventing recurrence and morbidity to surrounding tissues.[2–5 7 11]

Contributors The patient was referred to our tertiary centre after the diagnosis of a large vaginal mass. YJ, head of the department of Obstetrics and Gynaecology, was the gynaecologist to whom this patient was referred. He planned elective surgery to have the mass removed and was in charge of the follow-up of the patient. SVM, registrar in Obstetrics and Gynaecology in the same centre, got involved after the surgery was already performed and the definitive diagnosis was made. Interested by the case she performed literature research and decided to write a case report. Supported by and under supervision of YJ and EF, consultant Obstetrics and Gynaecology in the same centre, she wrote down her gynaecological findings. GB is anatomopathologist and was consulted in writing the case report. He wrote the histopathological conclusions and revised the case report as well.

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