CASE REPORT

Uterine lipoleiomyoma

Niharika Tyagi,¹ Raman Tyagi,² Yvette Griffin²¹University Hospitals of Leicester, Leicester, UK²Department of Radiology, University of Leicester, Leicester, UK

Correspondence to

Dr Niharika Tyagi,
niharika_tyagi@hotmail.co.uk

Accepted 21 November 2014

SUMMARY

We report a case of a patient who was found to have a uterine lipoleiomyoma on ultrasound and MRI, which was later confirmed with histological evidence. Uterine lipoleiomyomas are rare benign tumours that are often misdiagnosed on imaging, leading to unnecessary invasive procedures. Increased awareness of the tumour and its characteristics on imaging can aid future preoperative diagnosis.

BACKGROUND

This case highlights a patient's journey from symptoms and investigations to final diagnosis, during which time she underwent the added agony of not knowing what she suffered from. Lipoleiomyoma is a benign condition with considerable differential diagnoses; being aware of its imaging characteristics can aid diagnosis without requiring invasive procedures and patient distress.

CASE PRESENTATION

A 59-year-old woman, otherwise fit and well, presented with a 4-month history of abdominal fullness and pain. Physical examination revealed a non-tender palpable mass in the right lower quadrant; all blood tests were non-significant.

INVESTIGATIONS

The patient's upper abdominal ultrasound was unremarkable other than for a fatty liver, with a normal spleen, pancreas and kidneys. Her pelvic/transvaginal ultrasound (US) showed the presence of a hyperechoic solid mass within the lumen of the uterus measuring 5.5×4.6×4.1 cm. A thin rim of normal myometrium was seen enclosing the mass (figures 1 and 2). It had well-defined margins with faint vascularity, as demonstrated on colour Doppler. To confirm the nature of the mass, a MRI was performed, which showed a 52×58 mm mass

Figure 2 Transvaginal ultrasound of the pelvis showing the mass without markings.

within the uterus with a fatty component, surrounded by a thin layer of myometrium, consistent with a lipoleiomyoma (figures 3–5). The patient went on to have a hysteroscopy, which showed atrophic but irregular endometrium. Curettings were sent for histology, which showed presence of fat cells within the smooth muscle cells consistent with a lipoleiomyoma (figure 6).

DISCUSSION

Lipoleiomyomas are rare benign uterine tumours with a reported incidence ranging from 0.03% to 0.2%.¹ They are a subset of leiomyomas, but consist of smooth muscle cells along with varying degrees of mature adipose tissue. They can range from pure lipomas to lipoleiomyomas or fibrous myolipomas, of which the latter two are the commonest.^{1–7}

The pathogenesis of lipoleiomyomas remains largely unknown, however, several hypotheses exist. Avritscher *et al*¹ suggest that the tumour may arise from misplaced embryonic remains of lipoblasts or due to perivascular extension of peritoneal or retroperitoneal fat, or that it is due to lipocystic differentiation of primitive connective or mesenchymal tissue.² Additionally, these tumours are more common in postmenopausal women who are also at increased risk of various lipid metabolic disorders associated with oestrogen deficiency, which may promote abnormal storage of intracellular lipids. The most widely accepted theory, however, is fatty metamorphosis of smooth muscle cells into adipose tissue.^{5–7,8}

Lipoleiomyomas present similarly to leiomyomas, with symptoms of palpable mass, increased urinary frequency, constipation, pelvic discomfort, uterine bleeding and hypermenorrhoea. They are more common in postmenopausal women, with 52 being the reported mean age of presentation.^{1–5,7}

Although lipoleiomyomas are benign tumours, the differentials include benign ovarian teratomas,

Figure 1 Transvaginal ultrasound of the pelvis demonstrating the presence of a hyperechoic solid mass within the lumen of the uterus measuring 5.5×4.6×4.1 cm. A thin rim of normal myometrium is seen enclosing the mass.

To cite: Tyagi N, Tyagi R, Griffin Y. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2014-207763

Figure 3 T1 axial MRI of the pelvis demonstrating a 52×58 mm hyperintense mass within the uterus with some fatty component, surrounded by a thin layer of myometrium, consistent with a lipoleiomyoma.

liposarcomas, lipoblastic lymphadenopathy, retroperitoneal cystic hamartomas, extra-adrenal myelolipomas and benign pelvic lipomas.¹ Clearly, some of these are more worrying than lipoleiomyomas and require further invasive investigation. The clinician's awareness of imaging characteristics of lipoleiomyomas could spare the patient from having to undergo an unnecessary invasive procedure.⁴

Most case reports of lipoleiomyomas describe ultrasonographic findings of a well-circumscribed hyperechoic mass with a surrounding hypoechoic rim. CT scanning can demonstrate the fat component of these tumours and usually show a well-circumscribed, heterogeneously dense mass. However, CT is not able to illustrate detailed uterine anatomy and it may be difficult to distinguish whether the mass is of uterine or ovarian origin. MRI is the superior imaging tool as it does not involve radiation, has multiplanar capabilities and high soft tissue contrast resolution. It can demonstrate the hyperintense, well circumscribed mass, its high fat components and the capsule more clearly than CT.¹⁻⁵ A retrospective study, conducted on 51 patients who were diagnosed as having lipoleiomyomas, post-operatively found that despite all having had preoperative US, CT and MRIs, only 14% were correctly diagnosed as having

Figure 4 T1 axial fat suppressed image of the pelvis showing uterine mass with signal drop consistent with fat density.

Figure 5 T2 sagittal MRI of the pelvis showing T2 hyperintense mass within the uterine cavity consistent with hyperintense fibroid.

uterine lipoleiomyomas. Sixteen per cent of cases were reported as having ovarian teratomas, which is a key differential that can be difficult to distinguish from lipoleiomyomas, especially if the mass is extrauterine.⁵ This reiterates that the key is to be more aware and recognise the radiological features of uterine lipoleiomyomas, particularly their fatty nature. If lipoleiomyomas can be correctly identified using imaging alone, unnecessary operations can be prevented and the patient can be managed without invasive investigations.

Figure 6 Occasional fat cells are seen admixed with the smooth muscle, a feature suggestive of a lipoleiomyoma (H&E ×40).

Learning points

- ▶ Uterine lipoleiomyoma is a rare benign tumour presenting in a similar manner to leiomyomas.
- ▶ Ultrasound findings show the presence of a well-circumscribed hyperechoic mass with a surrounding hypoechoic rim.
- ▶ MRI is the investigation of choice, as it has the ability to pick up the high fat content of the tumour and pinpoint its exact location.
- ▶ Improved understanding and imaging diagnosis of the tumour can prevent unnecessary invasive procedures.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCES

- 1 Avritscher R, Iyer RB, Ro J, *et al.* Lipoleiomyoma of the uterus. *AJR Am J Roentgenol* 2001;177:856.
- 2 Chan H, Chau M, Lam C, *et al.* Uterine lipoleiomyoma: ultrasound and computed tomography findings. *J HK Coll Radiol* 2003;6:30–2.
- 3 Chawla A, Krantikumar R, Raut A, *et al.* Radiological case of the month. *Appl Radiol* 2004;33:38–40.
- 4 Chu C, Tang Y, Chan T, *et al.* Diagnostic challenge of lipomatous uterine tumours in three patients. *World J Radiol* 2012;4:58–62.
- 5 Lee S, Chae H, Jeong B, *et al.* A clinical review of uterine lipoleiomyoma: a study for value and limitations of radiologic evaluation in preoperative diagnosis of lipoleiomyoma. *Korean J Obstet Gynecol* 2012;55:953–7.
- 6 Shintaku M. Lipoleiomyomatous tumours of the uterus: a heterogeneous group? Histopathological study of 5 cases. *Pathol Int* 1996;46:498–502.
- 7 Sieinski W. Lipomatous neometaplasia of the uterus. Report of 11 cases with discussion of histogenesis and pathogenesis. *Int J Gynecol Pathol* 1989;8:357–63.
- 8 Singh R, Kimar B, Bhat R, *et al.* Uterine lipoleiomyomas: a report of two cases with a brief review of literature. *J Clin Diagn Res* 2012;6:718–19.

Copyright 2014 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit <http://group.bmj.com/group/rights-licensing/permissions>.
BMJ Case Report Fellows may re-use this article for personal use and teaching without any further permission.

Become a Fellow of BMJ Case Reports today and you can:

- ▶ Submit as many cases as you like
- ▶ Enjoy fast sympathetic peer review and rapid publication of accepted articles
- ▶ Access all the published articles
- ▶ Re-use any of the published material for personal use and teaching without further permission

For information on Institutional Fellowships contact consortiasales@bmjgroup.com

Visit casereports.bmj.com for more articles like this and to become a Fellow