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Anterior Abdominal Wall Rhabdomyoma Mimicking Uterine Fibroid in Pregnancy: A Rare Case Report

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Abstract

Background: Rhabdomyoma is a rare benign tumour of striated muscle, most commonly encountered in the heart, head, or neck. Its occurrence in the anterior abdominal wall is extremely uncommon, particularly during pregnancy. Such tumours can closely mimic more prevalent pathologies, such as uterine fibroids, posing significant diagnostic and management challenges.

Case Presentation: We describe the case of a 30-year-old primigravida who presented at term with a progressively enlarging, painless abdominal mass, initially suspected to be a uterine fibroid. Ultrasonography revealed a well-circumscribed anterior abdominal wall mass, but further imaging was limited by advanced pregnancy. The patient underwent surgical excision under spinal anaesthesia, and a 9 × 6 cm encapsulated tumour was removed from the right rectus abdominis muscle. Histopathological examination confirmed adult-type rhabdomyoma. The postoperative course was uneventful, with normal wound healing, and both maternal and foetal outcomes were favourable at follow-up.

Conclusion: Anterior abdominal wall rhabdomyoma is an exceptionally rare entity in pregnancy and may clinically mimic more common tumours such as uterine fibroids. Awareness of this differential diagnosis, combined with thorough intraoperative and histopathological assessment, is vital for accurate diagnosis and effective management.

Keywords: Rhabdomyoma; anterior abdominal wall; pregnancy; tumour; case report; uterine fibroid mimicry

INTRODUCTION

Rhabdomyoma is a rare benign tumour originating from striated muscle tissue, most commonly encountered in the cardiac, head, and neck regions. Its occurrence in the anterior abdominal wall is exceptionally uncommon, particularly during pregnancy, and poses significant diagnostic challenges. In women of reproductive age, abdominal wall masses are more frequently attributed to fibroids, desmoid tumours, or other soft tissue neoplasms, making the diagnosis of rhabdomyoma both rare and unexpected [1,2].

The clinical and radiological features of anterior abdominal wall rhabdomyoma may closely resemble those of a uterine fibroid, especially in the gravid patient. This diagnostic overlap can complicate both preoperative assessment and intraoperative management. Previous case reports have highlighted instances where anterior abdominal wall rhabdomyoma was mistaken for a uterine fibroid, further emphasising the potential for misdiagnosis [3]. Other rare tumours, such as desmoid tumours and sarcomas, should also be considered in the differential diagnosis of anterior abdominal wall masses, particularly in women of reproductive age [1,4].

Very few cases have been described in the literature, and reports during pregnancy are exceedingly rare. Tumours such as rhabdomyoma and pericardial tumours encountered during pregnancy are notable for their rarity and the complexity they add to clinical decision-making [5]. We present the case of a young primigravida with a rapidly enlarging anterior abdominal wall tumour, initially presumed to be a uterine fibroid, ultimately diagnosed as an adult-type rhabdomyoma on histopathological examination. This case highlights the need for awareness of rare differential diagnoses in pregnancy and the critical role of surgical and pathological evaluation in guiding appropriate management.

Case presentation

Patient Information and Clinical History

A 30-year-old primigravida presented at 38 weeks' gestation with a gradually enlarging, painless swelling in the right lower abdomen, first noticed at approximately 28 weeks of pregnancy. She reported no abdominal pain, gastrointestinal or urinary complaints, fever, or weight loss. There was no history of previous abdominal surgery, trauma, or significant family medical conditions.

Her last menstrual period was 27 February 2023, establishing an estimated date of delivery of 4 December 2023. Antenatal care had otherwise been routine and uneventful until the detection of the abdominal mass.

Physical Examination and Initial Work-up

On general examination, the patient was afebrile, with stable vital signs. Abdominal examination revealed a gravid uterus consistent with her gestational age. In the right lower quadrant of the anterior abdominal wall, a firm, non-tender, mobile mass measuring approximately 9 × 6 cm was palpable, distinctly separate from the uterine contour. The overlying skin appeared normal, with no erythema, oedema, or visible veins. There was no regional lymphadenopathy.

Laboratory investigations were unremarkable, with the following representative values:

- Haemoglobin: 12.2 g/dL
- White blood cell count: 7.8 × 10^9/L
- Platelets: 220 × 10^9/L
- Urea: 3.8 mmol/L
- Creatinine: 55 μmol/L
- ALT: 22 U/L, AST: 26 U/L

  All parameters were within normal reference ranges. Tumour markers (CA-125, alpha-fetoprotein, β-hCG) were not performed, as there was no clinical suspicion for malignancy.

Ultrasound examination demonstrated a well-circumscribed, hypoechoic, non-vascular mass arising from the right rectus abdominis muscle, measuring 9 × 6 cm, with no involvement of the uterus or intra-abdominal organs. The initial radiological impression was a possible uterine fibroid, given the patient's demographic and anatomical location of the mass. MRI was not performed due to institutional policy and advanced gestational age.

The working differential diagnosis included uterine fibroid, desmoid tumour, soft tissue sarcoma, and—less likely—lipoma or rhabdomyoma.

Operative Findings and Management

In view of the progressive enlargement of the mass and the approach of term, a multidisciplinary team decision was made to proceed with surgical excision prior to delivery. On 30 November 2023, the patient underwent surgery under spinal anaesthesia.

A transverse (Pfannenstiel) incision was made in the lower abdomen. Intra-operatively, a well-encapsulated, firm tumour measuring 9 × 6 cm was found arising from the right rectus abdominis muscle and its sheath. The mass was clearly demarcated, with a distinct cleavage plane separating it from the gravid uterus and other intra-abdominal structures. No adhesions, infiltration, or lymphadenopathy were observed, and the peritoneum was not breached. The uterus and adnexa appeared unremarkable.

The mass was excised completely with careful dissection, resulting in minimal blood loss (estimated at less than 100 mL). There were no intra-operative complications. The abdominal wall was reconstructed, and the wound was closed in layers.

The patient's postoperative recovery was uneventful. Wound healing was normal, and she was discharged home on the fifth postoperative day in good condition.

Pathological Findings and Follow-up

Gross examination of the excised specimen revealed a well-circumscribed, grey-white, firm mass measuring 9 × 6 × 4 cm. On sectioning, the cut surface appeared homogeneous, with no evidence of haemorrhage, necrosis, or cystic change (Figure 2B). Intra-operative view demonstrated a highly vascular, encapsulated, reddish-brown mass arising from the rectus sheath and displacing the gravid uterus posteriorly, macroscopically mimicking a large uterine fibroid (Figure 2A).

Microscopic examination showed large polygonal cells with abundant eosinophilic cytoplasm, well-defined cell borders, and characteristic cross-striations. There was no nuclear atypia or increased mitotic activity. On low-power H&E section, a well-circumscribed lesion composed of intersecting fascicles of mature striated muscle delineated by fibrous septa was observed, with an absence of nuclear pleomorphism, mitoses, and necrosis, supporting a benign rhabdomyomatous

aetiology (Figure 1B). At higher magnification, haphazardly arranged skeletal-muscle fibres embedded in a loose, myxoid stroma were visible, with scattered vacuolated ("spider-web") rhabdomyoblastic cells and bland, round-to-oval nuclei—features characteristic of adult-type rhabdomyoma (Figure 1A). Immunohistochemical staining (if performed) would typically be positive for desmin and negative for S-100, supporting a myogenic origin.

The patient was followed up at six weeks postoperatively. She remained asymptomatic, with a well-healed surgical wound and no clinical or radiological evidence of recurrence. The remainder of the pregnancy and delivery were uneventful, and both mother and baby were healthy at follow-up.

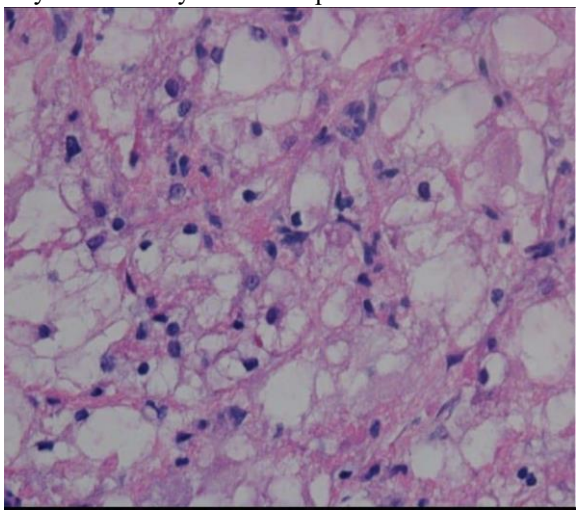

Figure 1A. Haematoxylin-and-eosin (H&E)-stained photomicrograph (×200) of the anterior abdominal-wall tumour showing haphazardly arranged skeletal-muscle fibres embedded in a loose, myxoid stroma with scattered vacuolated ("spider-web") rhabdomyoblastic cells and bland, round-to-oval nuclei—features characteristic of adult-type rhabdomyoma.

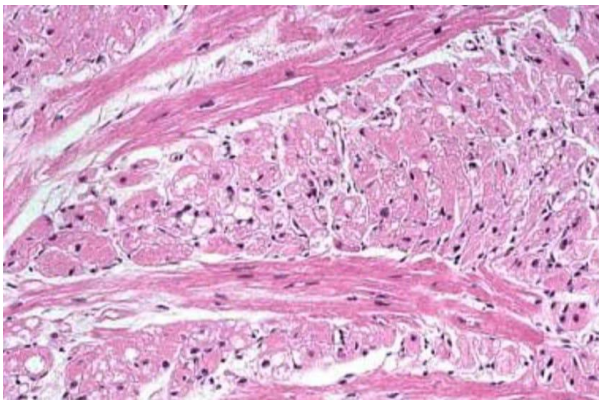

Figure 1B. Low-power H&E section (×100) demonstrating a well-circumscribed lesion composed of intersecting fascicles of mature striated muscle delineated by fibrous septa; nuclear pleomorphism, mitoses and necrosis are absent, supporting a benign rhabdomyomatous aetiology.

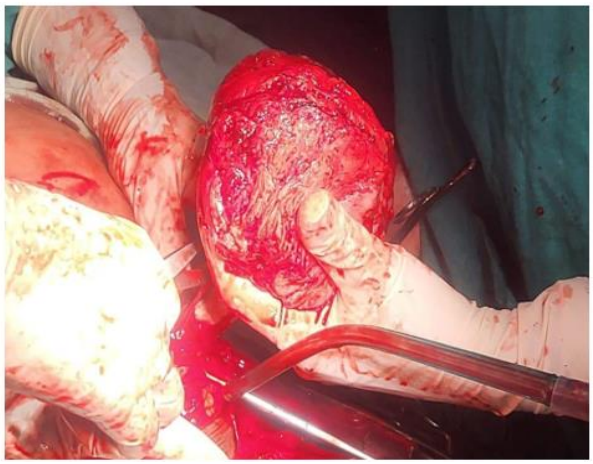

Figure 2A. Intra-operative view through a lower abdominal incision: a highly vascular, encapsulated reddish-brown mass arising from the rectus sheath and displacing the gravid uterus posteriorly—macroscopically mimicking a large uterine fibroid.

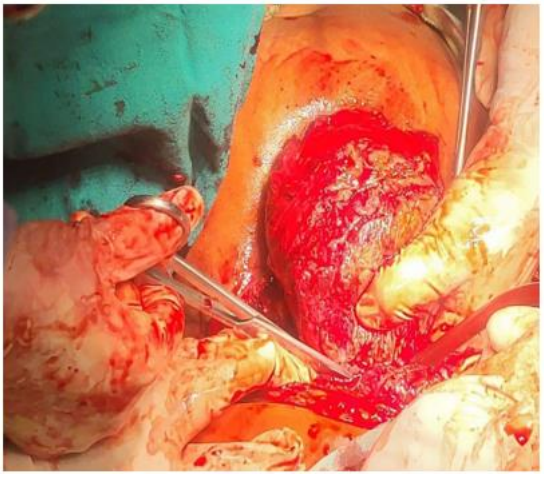

Figure 2B. Gross specimen immediately after en-bloc excision (≈10 × 8 cm); the lobulated, smooth external surface and firm, homogeneous cut surface are consistent with a benign skeletal-muscle tumour (rhabdomyoma) of the anterior abdominal wall.

DISCUSSION

Tumours of the anterior abdominal wall in pregnancy are rare and present significant diagnostic challenges. Among benign soft tissue tumours, desmoid tumours are most frequently encountered in this setting, particularly in women of reproductive age and those with recent pregnancies [6,13]. These lesions typically present as painless, gradually enlarging masses, similar to the presentation of our patient.

Radiological assessment, primarily by ultrasonography, is essential in the evaluation of abdominal wall masses during pregnancy, though the specificity for tumour type is limited [8,15]. Advanced imaging such as MRI can provide additional information but is often unavailable or impractical in late pregnancy, as in our case [9]. The differential diagnosis in such cases is broad, encompassing uterine fibroids, desmoid tumours, soft tissue sarcomas, and rarely, rhabdomyomas [14,16].

The clinical and imaging features of desmoid tumours, fibroids, and rhabdomyomas often overlap, resulting in frequent preoperative misdiagnosis [8]. Similar diagnostic confusion has been documented in other case reports of abdominal wall tumours presenting during pregnancy [17]. In our patient, the mass was initially presumed to be a uterine fibroid, highlighting the need for a high index of suspicion for less common entities.

True rhabdomyoma of the anterior abdominal wall in pregnancy is exceptionally rare, with the majority of rhabdomyoma cases in obstetric practice relating to foetal cardiac tumours [10,11]. Extra-cardiac rhabdomyomas, as seen in our patient,

are almost always benign and curable with complete surgical excision [10]. Histopathological examination remains the gold standard for diagnosis, distinguishing rhabdomyoma from other spindle cell tumours by demonstrating mature skeletal muscle fibres, lack of nuclear atypia, and absence of mitoses [10]. Immunohistochemistry further supports diagnosis, with positivity for desmin and negativity for S-100 [10].

The prognosis after complete surgical excision of benign abdominal wall tumours in pregnancy is generally excellent, with minimal risk of recurrence [9]. Our patient had an uneventful postoperative recovery and remained free of disease at follow-up, in line with previously published outcomes [6].

This case highlights the importance of considering rare tumours such as rhabdomyoma in the differential diagnosis of abdominal wall masses in pregnancy. A multidisciplinary approach, careful intraoperative assessment, and definitive histopathological examination are essential to ensure optimal management and maternal–foetal outcomes [17].

CONCLUSION

This case highlights the importance of considering rare benign tumours such as rhabdomyoma in the differential diagnosis of anterior abdominal wall masses in pregnant women. The clinical and imaging features may closely mimic more common entities such as uterine fibroid or desmoid tumour, underlining the diagnostic challenges faced by clinicians. Definitive diagnosis relies on careful intra-operative assessment and histopathological examination. Complete surgical excision offers an excellent prognosis, with minimal risk of recurrence. Awareness of this rare entity can facilitate timely diagnosis and appropriate management, ensuring optimal outcomes for both mother and child.

Learning Points

- Anterior abdominal wall masses in pregnancy may closely mimic common conditions such as uterine fibroid, but rare entities like rhabdomyoma should also be considered in the differential diagnosis.
- Ultrasonography is useful for initial assessment, but definitive diagnosis relies on histopathological examination following surgical excision.
- Complete resection of benign rhabdomyoma is curative, with excellent prognosis and minimal risk of recurrence.
- A multidisciplinary approach, including obstetricians, surgeons, and pathologists, is essential to ensure optimal management and maternal–foetal outcomes in complex cases.

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