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(CASE REPORT)

# Uterine leiomyoma with cystic degeneration misdiagnosed as an ovarian malignancy: A case report

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## Abstract

**Background**: Uterine leiomyoma is the most common benign tumour of the female genital tract, but degenerative changes may produce atypical features that mimic ovarian malignancy.

**Case**: We report miss AU, a 40-year-old nulliparous woman who presented with progressive abdominal distension, pain, and respiratory discomfort. Imaging studies demonstrated a large mixed solid–cystic abdominopelvic mass with ascites and elevated serum Cancer Antigen (CA)-125, raising suspicion of ovarian cancer. At exploratory laparotomy, two huge complex pedunculated uterine masses were seen alongside other smaller ones, with healthy-looking ovaries and fallopian tubes. A total abdominal hysterectomy with bilateral salpingo-oophorectomy was done and histopathological analysis confirmed leiomyoma with cystic degeneration without any malignant features. The postoperative course was uneventful, and follow-up remained satisfactory.

**Discussion**: Degenerative uterine leiomyomas often have atypical ultrasonographic features that obscure their uterine origin and can closely mimic ovarian or malignant adnexal masses, especially when cystic change is present. Although MRI provides the most reliable differentiation through characteristic signal patterns and demonstration of uterine attachment, limited availability and cost of advanced imaging and non-specific tumour markers make accurate diagnosis challenging in many settings.

**Conclusion**: This case underscores the diagnostic challenge posed by degenerative uterine leiomyomas and emphasizes the need to consider them in the differential diagnosis of suspected ovarian malignancy in women of reproductive age.

**Keywords:** Uterine Fibroid; Leiomyoma; Cystic Degeneration; Ovarian Tumour; Malignancy

## 1. Introduction

Uterine leiomyoma is the most common benign neoplasm of the female genital tract, arising from the smooth muscle of the uterus. Its prevalence increases with age during the reproductive years, with approximately 20–40% of cases occurring in women older than 35 years [1–3]. As fibroids enlarge, they outgrow their blood supply which may evoke cascades of inflammatory reactions and ischaemic changes leading to various types of degenerations. These degenerations could be Hyaline (60%); Cystic (4%), Red (3%), Myxoid (1-3%); Calcified (4%); Sarcomatous degeneration (0.1-0.8%) [4]. Diagnosis of uterine fibroids is made by clinical assessment and imaging studies. However, degenerative changes within leiomyomas may alter their typical appearance and lead to diagnostic difficulty [5], particularly when they mimic ovarian tumours. Cystic degeneration is an uncommon variant of fibroid degenerations,

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reported in about 4% of cases [4]. We report a case of a huge subserosal uterine leiomyoma that was misdiagnosed as an ovarian malignancy.

## 2. Case Report

Miss AU, was a 40 year old single nulliparous woman with a 5 year history of abdominal swelling and pain. The swelling progressively increased in size until it was big enough to affect her breathing and ability to lay supine. It was associated with lower abdominal pain which was stabbing in nature, moderate in severity and radiated to her lower back.

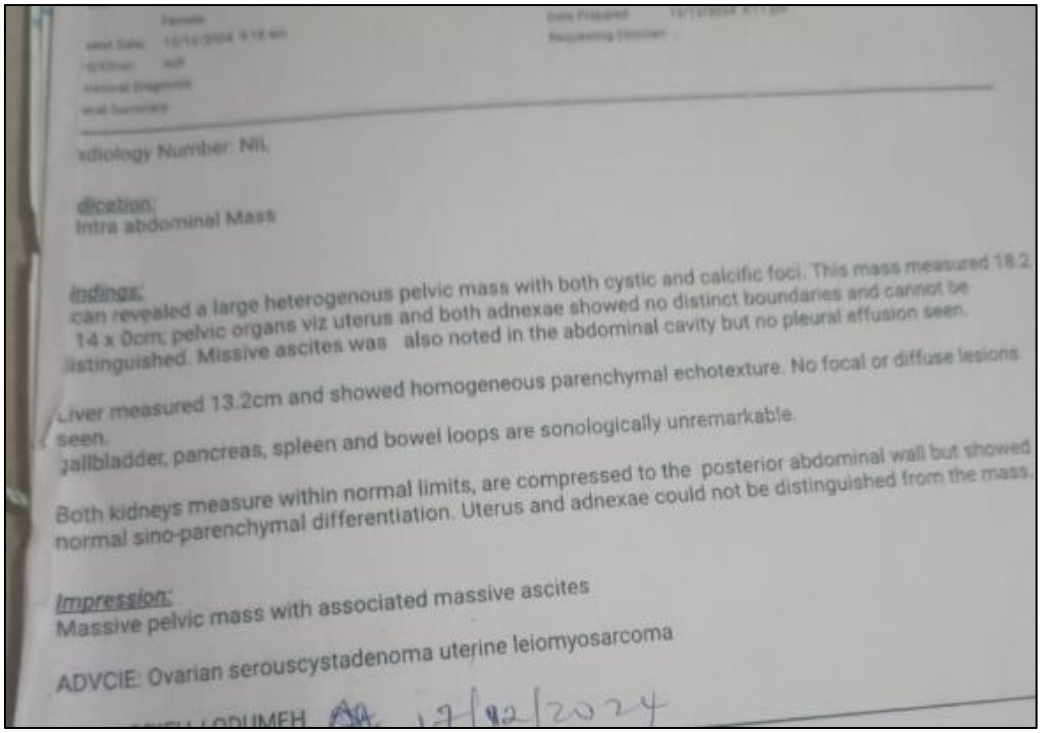
There was associated bilateral leg swelling, nausea and vomiting, weight loss, easy satiety, constipation, feeling of bloating and painful urination. There was no history of jaundice, cough, convulsions, or swelling in any other part of the body. There was no family history of ovarian, colorectal or breast cancer and she had no positive history of smoking.

She had a regular 30-day menstrual cycle with a 4-5 day flow. She had no positive history of use of hormonal contraception.

On examination, she was chronically ill-looking, in no obvious painful distress, afebrile with temperature of 36.7$^{o}$c. She was pale, had pitting leg oedema up to the knee but was not dehydrated and no peripheral lymphadenopathy.

Her abdomen was grossly distended and moved with respiration showing a "2-tumour abdomen" with an obvious demarcation between the upper and lower part. The whole mass was about 36 weeks in size, firm in consistency with smooth surface, non-tender, non-mobile, not attached to overlying abdominal wall. There was no demonstrable ascites. Vaginal examination revealed intact hymen, hence digital vaginal examination was not done. Digital rectal examination showed good anal hygiene and sphincteric tone. Rectal mucosa was smooth and free but there was a firm, nodular and non-tender mass felt anteriorly. There was no such mass on the posterior aspect of the pelvis. A trans-abdominal ultrasound revealed a large heterogeneous pelvic mass with both cystic and calcific foci. The mass measured 18.2 x 14 x 10cm. The pelvic organs viz-a-viz the uterus and both adnexae showed no distinct boundaries and could not be distinguished. Massive ascites was also noted in the abdominal cavity (figure 1). A Computed Tomography, (CT) Scan of the abdomen and pelvis showed a bulky uterus that harboured multiple calcified fibroids with the largest measuring 24.3 x 17.6cm. It also showed another huge, well-defined, oval-shaped, mixed density, non-enhancing left adnexa mass that measured 27.0 x 21.3cm with associated displacement of the bowel loops and retro-peritoneal vessels to the right. No normal ovarian structure was seen distinct from the mass. The urinary bladder was compressed by the pelvic masses. There was mild ascites but no retro-peritoneal lymphadenopathy was seen. Both the ultrasound and CT scans were all suggestive of ovarian malignancy, uterine leiomyomata and ascites (figure 2). Tumour marker, Cancer Antigen (CA-125) was 94.8 U/ml which was over double the normal value (figure 3). An intravenous urography reported normal findings with intra-abdominal mass (figure 4).

She had an exploratory laparotomy and intraoperative findings were two huge complex masses with smaller ones attached to the uterine fundus via a thick peduncle. The two huge masses measured 10 x 8cm and 11 x 10cm respectively with all the masses altogether weighing 10.6kg (Figure 5a-c). Minimal ascitic fluid was drained and sent for cytology. The uterus was bulky with multiple fibroid seedlings, and healthy-looking ovaries and fallopian tubes bilaterally. She subsequently had a total abdominal hysterectomy with bilateral salpingo-oophorectomy. Histology confirmed leiomyoma with cystic degenerative changes as well as multiple intramural and sub-mucosal fibroids (Figure 6). There was no cytologic or cellular atypia. She had an uneventful postoperative period and was discharged on the 6th day after surgery. The patient's follow up has remained normal for the past 10 months.



xdiology Number: Nil.

dication:
Intra abdominal Mass

indings:
can revealed a large heterogenous pelvic mass with both cystic and calcific foci. This mass measured 18.2
14 x 0cm; pelvic organs viz uterus and both adnexae showed no distinct boundaries and cannot be
istinguished. Missive ascites was also noted in the abdominal cavity but no pleural effusion seen.

Liver measured 13.2cm and showed homogeneous parenchymal echotexture. No focal or diffuse lesions
seen.
gallbladder, pancreas, spleen and bowel loops are sonologically unremarkable.

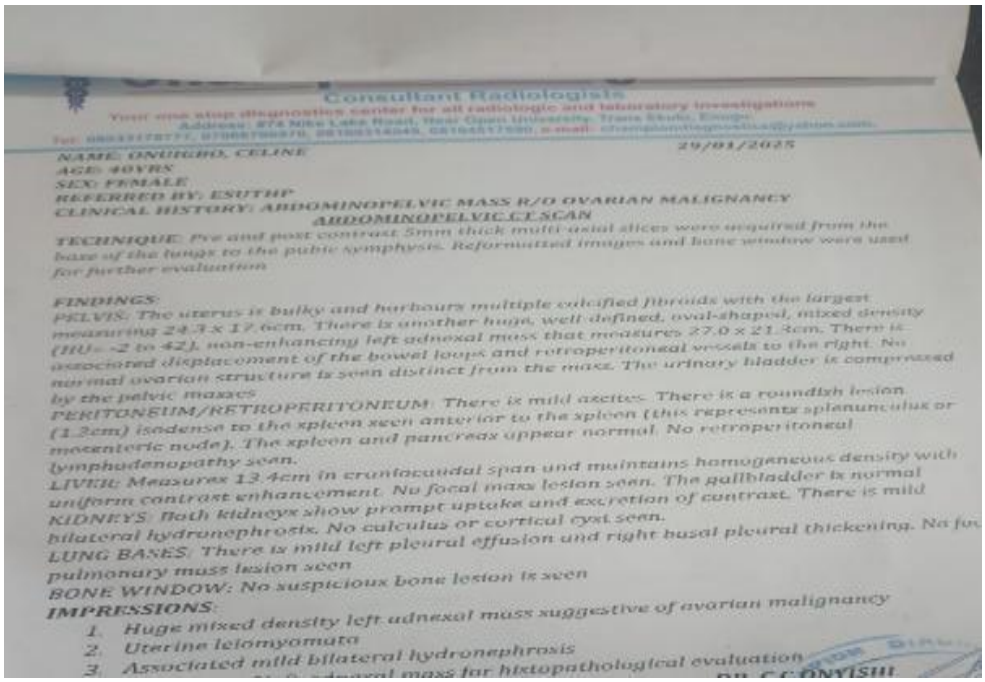
Both kidneys measure within normal limits, are compressed to the posterior abdominal wall but showed
normal sino-parenchymal differentiation. Uterus and adnexae could not be distinguished from the mass.

Impression:
Massive pelvic mass with associated massive ascites

ADVCIE: Ovarian serouscystadenoma uterine leiomyosarcoma

12/02/2024

**Figure 1** Abdominopelvic ultrasound scan



Consultant Radiologists
Your one stop diagnostics center for all radiologic and laboratory investigations

NAME: ONUIGBO, CELINE 29/01/2025
AGE: 40YRS
SEX: FEMALE
REFERRED BY: ESUTHP
CLINICAL HISTORY: ABDOMINOPELVIC MASS R/O OVARIAN MALIGNANCY

ABDOMINOPELVIC CT SCAN

TECHNIQUE: Pre and post contrast 5mm thick multi-axial slices were acquired from the base of the lungs to the pubic symphysis. Reformatted images and bone window were used for further evaluation

FINDINGS:
PELVIS: The uterus is bulky and harbours multiple calcified fibroids with the largest measuring 24.3 x 17.6cm. There is another huge, well-defined, oval-shaped, mixed density (HU= -2 to 42), non-enhancing left adnexal mass that measures 27.0 x 21.3cm. There is associated displacement of the bowel loops and retroperitoneal vessels to the right. No normal ovarian structure is seen distinct from the mass. The urinary bladder is compressed by the pelvic masses
PERITONEUM/RETROPERITONEUM: There is mild ascites. There is a roundish lesion (1.2cm) isodense to the spleen seen anterior to the spleen (this represents splenunculus or mesenteric node). The spleen and pancreas appear normal. No retroperitoneal lymphadenopathy seen.
LIVER: Measures 13.4cm in craniocaudal span and maintains homogeneous density with uniform contrast enhancement. No focal mass lesion seen. The gallbladder is normal
KIDNEYS: Both kidneys show prompt uptake and excretion of contrast. There is mild bilateral hydronephrosis. No calculus or cortical cyst seen.
LUNG BASES: There is mild left pleural effusion and right basal pleural thickening. No fo pulmonary mass lesion seen
BONE WINDOW: No suspicious bone lesion is seen

IMPRESSIONS:
1. Huge mixed density left adnexal mass suggestive of ovarian malignancy
2. Uterine leiomyomata
3. Associated mild bilateral hydronephrosis

Advised histopathological evaluation

DR. C.C. ONYISHI

**Figure 2** Abdominopelvic computed tomography scan

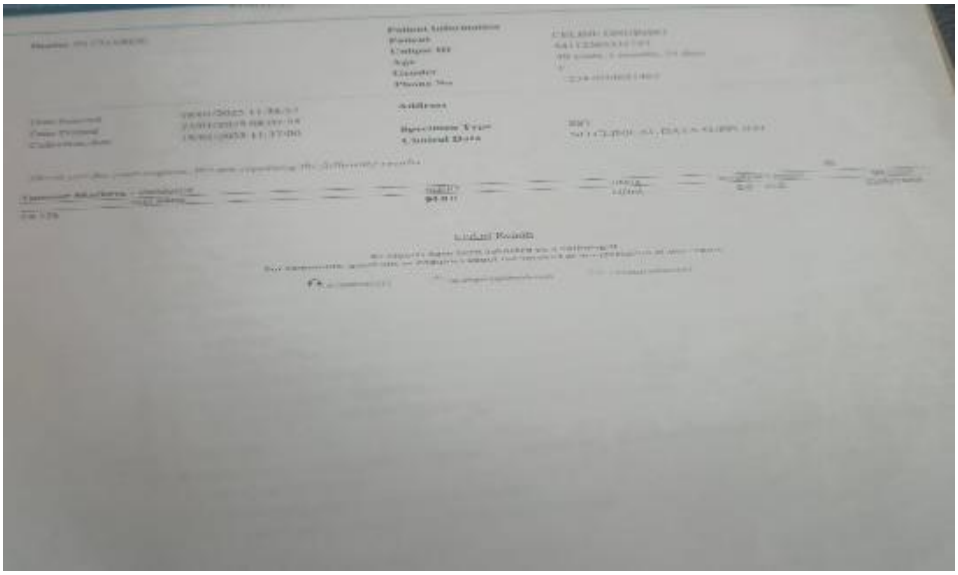
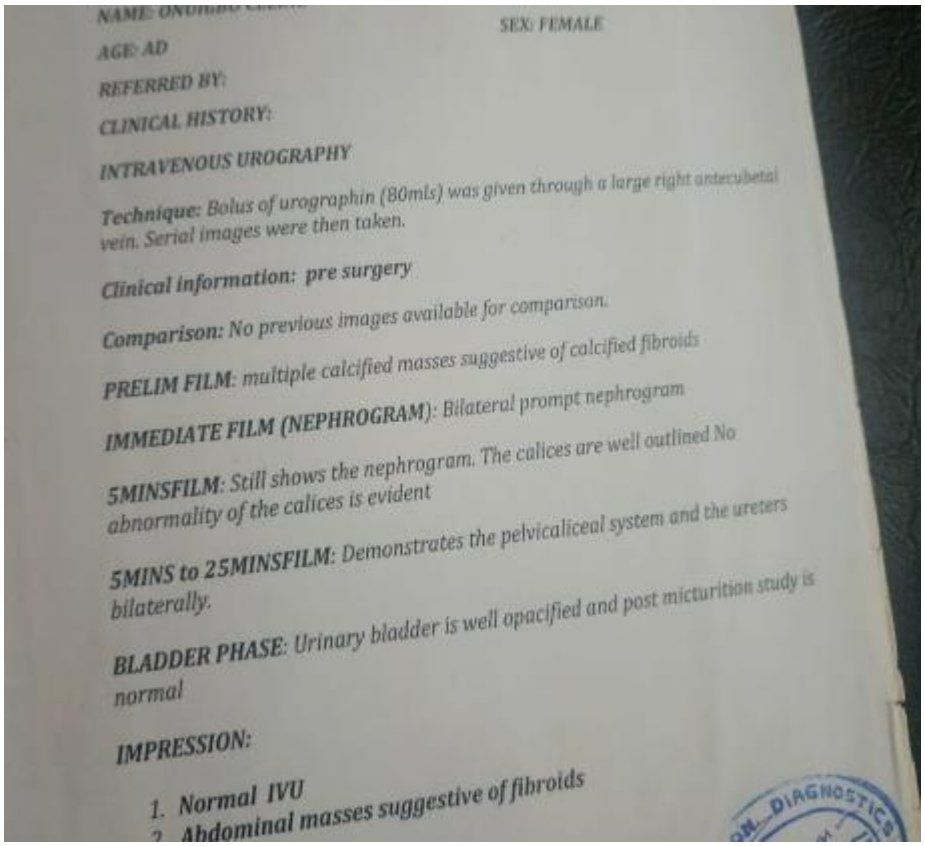


**Figure 3** Serum CA125 level



NAME: ONORIBO

SEX: FEMALE

AGE: AD

REFERRED BY:

CLINICAL HISTORY:

INTRAVENOUS UROGRAPHY

**Technique:** Bolus of urographin (80mls) was given through a large right antecubetal vein. Serial images were then taken.

**Clinical information: pre surgery**

**Comparison:** No previous images available for comparison.

**PRELIM FILM**: multiple calcified masses suggestive of calcified fibroids

**IMMEDIATE FILM (NEPHROGRAM)**: Bilateral prompt nephrogram

**5MINSFILM**: Still shows the nephrogram. The calices are well outlined No abnormality of the calices is evident

**5MINS to 25MINSFILM**: Demonstrates the pelvicaliceal system and the ureters bilaterally.

**BLADDER PHASE**: Urinary bladder is well opacified and post micturition study is normal

**IMPRESSION:**

1. **Normal IVU**
2. **Abdominal masses suggestive of fibroids**

DIAGNOSTICS

**Figure 4** Intravenous urography report

**Figure 3a-c** Intraoperative findings

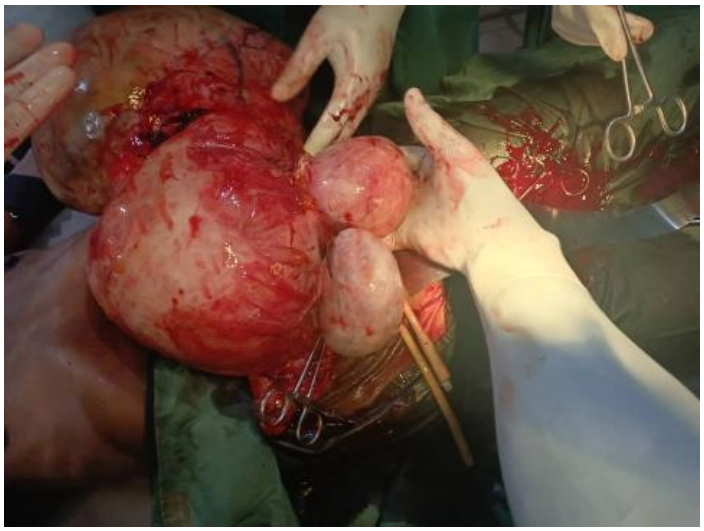
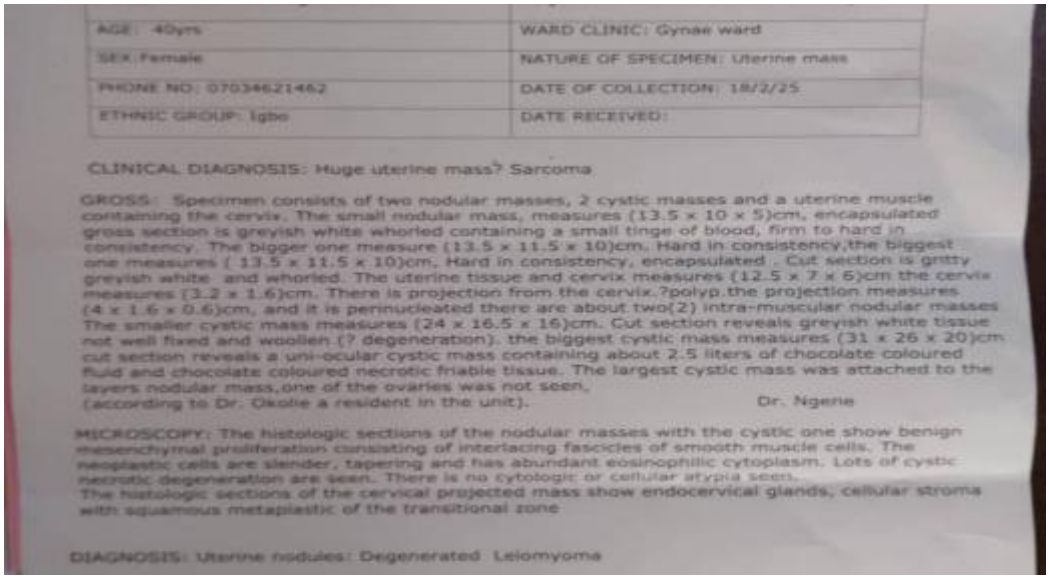


**Figure 5b** Intraoperative findings

**Figure 5c** Intraoperative findings



| | |
|---|---|
| AGE: 40yrs | WARD CLINIC: Gynae ward |
| SEX: Female | NATURE OF SPECIMEN: Uterine mass |
| PHONE NO: 07034621462 | DATE OF COLLECTION: 18/2/25 |
| ETHNIC GROUP: Igbo | DATE RECEIVED: |

CLINICAL DIAGNOSIS: Huge uterine mass? Sarcoma

GROSS: Specimen consists of two nodular masses, 2 cystic masses and a uterine muscle containing the cervix. The small nodular mass, measures (13.5 x 10 x 5)cm, encapsulated gross section is greyish white whorled containing a small tinge of blood, firm to hard in consistency. The bigger one measure (13.5 x 11.5 x 10)cm. Hard in consistency,the biggest one measures ( 13.5 x 11.5 x 10)cm. Hard in consistency, encapsulated . Cut section is gritty greyish white and whorled. The uterine tissue and cervix measures (12.5 x 7 x 6)cm the cervix measures (3.2 x 1.6)cm. There is projection from the cervix.?polyp.the projection measures (4 x 1.6 x 0.6)cm, and it is perinucleated there are about two(2) intra-muscular nodular masses The smaller cystic mass measures (24 x 16.5 x 16)cm. Cut section reveals greyish white tissue not well fixed and woollen (? degeneration). the biggest cystic mass measures (31 x 26 x 20)cm cut section reveals a uni-ocular cystic mass containing about 2.5 liters of chocolate coloured fluid and chocolate coloured necrotic friable tissue. The largest cystic mass was attached to the layers nodular mass,one of the ovaries was not seen,
(according to Dr. Okolie a resident in the unit). Dr. Ngene

MICROSCOPY: The histologic sections of the nodular masses with the cystic one show benign mesenchymal proliferation consisting of interlacing fascicles of smooth muscle cells. The neoplastic cells are slender, tapering and has abundant eosinophilic cytoplasm. Lots of cystic necrotic degeneration are seen. There is no cytologic or cellular atypia seen.
The histologic sections of the cervical projected mass show endocervical glands, cellular stroma with squamous metaplastic of the transitional zone

DIAGNOSIS: Uterine nodules: Degenerated Leiomyoma

**Figure 6** Histology of the specimen

## 3. Discussion

Uterine leiomyoma represents the most prevalent benign tumour of the female reproductive tract, affecting nearly one-third of women during the reproductive years [1,2]. Structural alterations occur in a significant proportion of cases, with degenerative changes identified in up to 13.3% [6]. Hyalinisation predominates, while myxoid, calcific, cystic, lipomatous, and haemorrhagic transformations occur less frequently [7–9]. Clinical presentation is variable and largely dependent on tumour size, anatomical position, and internal changes, ranging from abnormal uterine bleeding, pelvic discomfort, reproductive impairment [10] and acute abdomen [11]. The presence of some of the clinical symptoms and signs in the patient, elevated serum CA125, peritoneal ascites, impression of adnexal mass by ultrasound and CT scan made suspicion of ovarian malignancy high in our patient.

Owing to their indolent growth and the accommodating nature of the abdominal cavity, leiomyomas may attain considerable dimensions before producing symptoms [12]. Although massive tumours may precipitate acute complications such as haemorrhage or visceral compression, patients can remain largely asymptomatic, experiencing only minimal abdominal discomfort despite extensive disease burden [12].

On ultrasonography, uterine leiomyomas typically appear as homogeneous or heterogeneous hypoechoic masses, with their echotexture influenced by the proportions of smooth muscle and fibrous tissue, as well as the presence of calcification or degeneration [1]. Hence, pelvic ultrasonography remains the initial diagnostic tool; however, altered morphology secondary to degeneration may obscure the diagnosis and simulate malignant or adnexal pathology [13] as was the case in our patient. Cystic transformation, in particular, may be indistinguishable from ovarian cysts. Advanced imaging with magnetic resonance or computed tomography is therefore essential in diagnostically challenging cases to define tumour composition and exclude metastatic features [4]. Although CT scan can provide more information regarding uterine fibroid as well as any malignant features including metastasis than pelvic ultrasound scan, it equally contributed in the diagnostic dilemma in this patient where it equally made impression of features suggestive of ovarian malignancy. The degeneration of uterine fibroid can best be delineated more on Magnetic Resonance Imaging (MRI) of the pelvis [4]. On MRI, leiomyomas are well circumscribed from the surrounding myometrium, with cystic degeneration showing low T1- and high T2-weighted signal intensity without enhancement, while hyaline degeneration demonstrates low T2 signal; these features help distinguish them from ovarian malignancies or adnexal masses by demonstrating normal ovaries or a direct uterine attachment such as a stalk [1]. Unfortunately, high cost and availability limited the use of this imaging modality to better evaluate the patient before the final surgical care and eventual histologic diagnosis. This is a common finding in the low and resource poor countries like Nigeria.

Serum tumour marker, Cancer Antigen 125 is commonly elevated in certain form of ovarian malignancy but are typically unremarkable in degenerative leiomyomas. Modest elevation of cancer antigen-125, when present, is more likely reflective of peritoneal irritation than underlying malignancy as was seen in the index patient who was initially thought to have ovarian malignancy due elevated CA125.

Similar degenerative changes in fibroid presenting diagnostic dilemma have been reported by some researchers. Gogo and his colleagues in Port harcourt Nigeria reported a case of a 31-year-old multiparous woman who presented to their facility with complaints of abdominal pain and swelling of 8 months duration. An abdominopelvic ultrasound scan noted a right adnexal complex dual multi-septated cystic lesions. Serum CA-125 was slightly elevated 64U/ml. She had exploratory laparotomy with sub-total hysterectomy. Histology revealed cystic degenerated leiomyoma [14]. This was almost similar presentation with the case we are reporting. However, while their patient was younger with a short duration of symptoms of 8 months, our patient was older, 40 years, and had an insidious 5 year duration of her symptoms. Both were suspected to have ovarian malignancy but turned out to be benign cystic degenerative disease of the fibroids on histology.

In Gambia, Anyanwu and his study groups reported a 38 year old nulliparous lady that presented with abdominal pain and swelling for 5 years and irregular painful menses for 3 years. Other clinical features were suggestive of intra-abdominal malignancy. Ultrasound and CT -Scan suggested "Ovarian Malignancy"!! At laparotomy a huge cyst of 41cm×38cm originating from the anterior uterine wall with multiple adhesions, cystic fluid measured about 8.2litres were the findings. She had total abdominal hysterectomy and bilateral salpingoophorectomy (TAH-BSO) with uneventful postoperative recovery and was discharged on day 5. The histopathology result confirmed hyaline cystic degeneration of uterine fibroids [15]. The clinical presentations was almost similar to the patient being reported. Both patients were about the same age and nulliparous, had similar 5 year duration of abdominal swelling and pains with clinical and radiological features of ovarian malignancy. Both had exploratory laparotomy and tissue diagnosis was similar benign cystic degenerative disease of uterine fibroids.

## 4. Conclusion

Uterine leiomyoma is the most frequent benign gynaecological tumour affecting women of reproductive age. Degenerative pedunculated uterine leiomyomas can closely mimic ovarian malignancy on clinical assessment and imaging, particularly when cystic change and ascites are present. Furthermore, they may be associated with elevated preoperative serum CA-125 levels in the presence of large abdominopelvic masses. Definitive diagnosis is often established intraoperatively and subsequently confirmed by histopathological examination.

## Compliance with ethical standards

### *Acknowledgements*

The authors acknowledged the supports and assistance from the radiology departments for their efforts in the patient's monitoring and follow up.

### *Statement of Ethical approval*

This case report is exempt from ethical approval in our institute.

### *Disclosure of conflict of interest*

There was no conflict of interest to declare.

### *Statement of informed consent*

Informed consent was obtained from the patient whose case was reported.

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