

## Case Report

# A Sinister Gut Feeling

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## INTRODUCTION

Abdominal aortic aneurysm (AAA) affects men more than their female counterparts, with a 4:1 male-to-female predominance.<sup>[1]</sup> However, women who present with AAA fare worse in comparison to their male counterparts. Women are older at presentation, exhibit quicker growth, and have a higher risk of rupture even at smaller diameters.<sup>[2,3]</sup> The prevalence of aneurysmal disease is affected by age, family history, sex, and tobacco exposure. The prevalence of AAAs ranges from 1.9% to 18.5% in men versus 1% to 4.2% in women.<sup>[4]</sup> Currently, the prevalence of AAAs in the female population is considered to be too low to justify routine screening.<sup>[4]</sup> According to the US Preventive Services Task Force (USPSTF) recommendation statement, the primary method of screening for AAA is conventional abdominal duplex ultrasonography.<sup>[5]</sup> The advantage of screening with ultrasonography is being a noninvasive, simple-to-perform technique with high sensitivity (94%–100%) and specificity (98%–100%) for detecting AAA and no exposure to radiation.<sup>[5]</sup> Computed tomography (CT) is accurate for identifying AAA; however, it is not recommended for screening because of the potential for harm from radiation exposure.<sup>[5]</sup> Physical examination has been used in practice but has low sensitivity (39%–68%) and specificity (75%) and is not recommended for screening.<sup>[5]</sup> The USPSTF recommends one-time screening for AAA with ultrasonography in men aged 65–75 years who have ever smoked.<sup>[5]</sup> It also recommends offering selective

## ABSTRACT

Women are generally spared from abdominal aortic aneurysm (AAA) formation by the immunomodulating effects of estrogen. However, once they develop it, especially in the postmenopausal group, its behavior is more sinister with rapid expansion, a higher tendency to rupture, and higher mortality as compared to the male counterparts. Reported here is a case of AAA in a postmenopausal woman who came to the outpatient department with low backache, vague abdominal pain, and dysuria which initially gave a picture of pelvic inflammation with urinary tract infection but was later found out to be aortic aneurysm.

**KEYWORDS:** Abdominal aortic aneurysm, aneurysm repair, postmenopausal

screening for AAA with ultrasonography in men aged 65–75 years who have never smoked rather than routinely screening all men in this group.<sup>[5]</sup> It recommends against routine screening for AAA with ultrasonography in women who have never smoked and have no family history of AAA.<sup>[5]</sup> The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harm of screening for AAA with ultrasonography in women aged 65–75 years who have ever smoked or have a family history of AAA.<sup>[5]</sup> Because of its uncommon occurrence, the diagnosis of AAA is often missed or procrastinated as one tends to overlook its remote possibility. Presented here is a case of AAA in a postmenopausal woman who had vague gut discomfort, low backache, and dysuria and was initially treated suspecting pelvic inflammation with urinary tract infection (UTI), however, later she underwent repair of the aneurysm.

## CASE REPORT

A 65-year-old P3L3 postmenopausal woman had been ailing with low backache, vague abdominal pain, dysuria, and vaginal discharge for 1½ years. She had visited the orthopedic outpatient department (OPD) where she denied any history of trauma for her backache. There were no aggravating or relieving factors, and the pain was not eased even on changing

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position. Her lumbar spine and hip examinations were found to be normal. She was then referred to the gynecological OPD to rule out any genitourinary cause for her symptoms. On examination, she was moderately built, her pulse was 80/min, and blood pressure was 140/90 mmHg. Her per abdominal examination revealed diffuse tenderness in the lower abdomen while per speculum examination showed atrophic vagina with copious white discharge. On per vaginal examination, the uterus was found to be atrophied with free fornices and mild tenderness. Her investigations showed normal blood sugar and renal function test, urine culture had *Escherichia coli* infection and ultrasound abdomen which was performed in some peripheral centre reported bilateral hydronephrosis. She was advised oral antibiotics and vaginal pessaries for her urinary and genital infection and analgesics for her backache along with referral to the urologist. The patient was relieved of dysuria and vaginal discharge, but she was noncompliant and did not follow up with the urologist as advised. Three weeks later, she presented to the emergency department with severe pain abdomen. The emergency ultrasound suspected an AAA which was also confirmed on CT scan to be 6 cm × 6 cm in size [Figure 1]. The patient was admitted under the vascular surgery unit and underwent successful aortic aneurysm repair after 3 days [Figure 2]. The patient stood the procedure well and was transfused 2 units of blood intraoperatively. Her postoperative recovery period was uneventful, and she was discharged on the 7<sup>th</sup> day after surgery. In the follow-up period, the patient was healthy at 1 month of her visit, following which she did not comply with further follow-up schedule.

## DISCUSSION

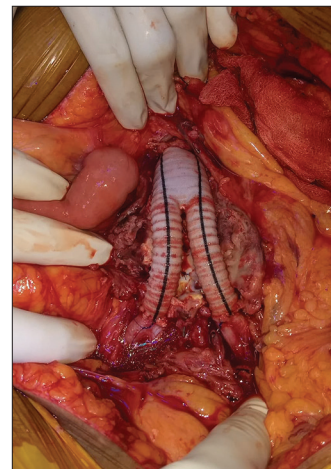
The usual symptoms of menopause comprise hot flushes, backache, urogenital atrophy leading to dryness and

itchy vagina, and frequent UTIs.<sup>[6]</sup> The main reason for menopausal symptoms is diminished estrogen levels.<sup>[6]</sup> In our patient, the symptoms of abdominal pain, low backache, dysuria, and vaginal discharge were treated as pelvic inflammatory disease with UTI. However, the cause for her abdominal discomfort and low backache was a more sinister entity, i.e., AAA. The initial ultrasound performed at a peripheral center reported hydronephrosis which was in fact the aneurysmal dilatation. The diagnosis was missed initially because of its infrequent occurrence and tendency to overlook such differential. Moreover, the symptoms coincided with more common menopausal disorders such as UTI and senile vaginitis.

Aneurysmal disease is characterized by the obliteration of elastin and collagen in the media and adventitia, smooth muscle cell loss with thinning of the medial wall, and infiltration of lymphocytes and macrophages with associated neovascularization.<sup>[7]</sup> The destruction of the elastin and collagen is through matrix metalloproteinases (MMPs), proteolytic enzymes released by T- and B-lymphocytes, macrophages, and other chronic inflammatory cells.<sup>[8]</sup> Studies have shown a male predominance in development of AAAs than females due to higher MMP production. The difference in AAA prevalence rates between males and females is attributed to the protective effects of estrogen. Estrogen has been shown to mediate its protective effect through immunomodulation.<sup>[9]</sup> Estrogens reduce macrophage MMP production and thus diminish collagen destruction and remodeling.<sup>[10]</sup> Estrogen attenuates immune cell migration, cytokine production, growth factor expression and chronic inflammation which are implicated in AAA development.<sup>[10]</sup> Another noteworthy finding reported is the reduced incidence of aneurysms seen in women taking hormone replacement therapy (HRT).<sup>[11]</sup>



**Figure 1:** Clinical photograph showing the abdominal aortic aneurysm of 6 cm × 6 cm



**Figure 2:** Clinical photograph showing repaired aneurysm with graft

Machado *et al.* in their retrospective analysis of patients undergoing endovascular aneurysm reported that AAA had a lower prevalence in females: of the 171 patients, only 5.8% ( $n = 10$ ) were female.<sup>[12]</sup> Women were older ( $P < 0.05$ ), and the number of women with no atherosclerotic risk factor was significantly higher.<sup>[12]</sup> They also pointed out that due to a lower prevalence of AAA in women, they are excluded from screening programs, so the prevalence may be underestimated.<sup>[12]</sup> An interesting and rare case of AAA coexistent with horseshoe kidney and occlusion of the iliac artery has been described by Saadi *et al.*<sup>[13]</sup> These authors described the technical difficulties in their endovascular aneurysm repair (EVAR) due to the proximity with the horseshoe kidney. Another noteworthy case was described by Sheikh *et al.* about a 100-year-old woman who underwent successful EVAR and survived for 2 years after the procedure.<sup>[14]</sup> Two cases of catastrophic AAA rupture in young women with systemic lupus erythematosus (SLE) have been described by Noorvash *et al.* highlighting the need to maintain a higher index of suspicion for aortic aneurysms in any individual with SLE, irrespective of age, who presents with symptoms such as severe abdominal, flank, back pain, syncope, or gastrointestinal bleeding.<sup>[15]</sup>

Our patient was an elderly, postmenopausal, hypertensive woman with no HRT exposure which points toward possible risk of AAA development. However, she was a nonsmoker with no family history of aneurysm. The relevance of reporting this case is to raise awareness about AAA which is seen in old age and often missed due to infrequent clinical encounter.

## CONCLUSION

AAA is an infrequent occurrence, and the initial symptoms can be subtle enough to cause a missed diagnosis. One must be aware of such an entity with its risk factors, especially in the relevant age group to avoid overlooking one.

## Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understands that her name and initials will not be published and due efforts will be made to conceal her identity, but anonymity cannot be guaranteed.

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## Conflicts of interest

There are no conflicts of interest.

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