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Hypertrophied Column of Bertin: A Mimicker of a Renal Mass

D Paul Vincent, Hari PS

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ABSTRACT

Introduction: Renal pseudotumors simulate malignancy but they are, in fact, comprised of normal renal tissue. Renal pseudotumors include both congenital as well as acquired causes, and they cause considerable anxiety. Many reports are available in the literature where the diagnosis has been clinched only after nephrectomy.

Case report: We report the case of a 52-year-old male who was referred with the diagnosis of left renal-cell carcinoma upon ultrasound. A contrast-enhanced computed tomography scan finalized the diagnosis of hypertrophied column of Bertin, as there was uniform uptake of contrast noted in the entire kidney. The patient was reassured, and he was relieved of his anxiety. This case is highlighted because congenital hypertrophied columns of Bertin can mimic a renal mass lesion.

Conclusion: Renal pseudotumors are not uncommon, and if they are diagnosed preoperatively with appropriate imaging, invasive interventions like biopsy and radical surgeries can be avoided.

INTRODUCTION

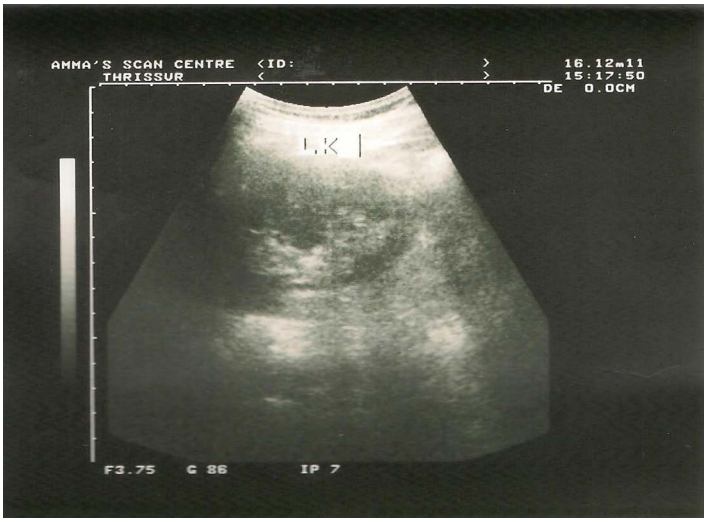
Renal pseudo tumors mimic renal mass lesion. Not uncommon, we came across reports of radical nephrectomy for this subtype of renal mass lesion. The prompt diagnosis of renal pseudo tumor goes a long way in avoiding unnecessary anxiety and unwarranted surgery.

CASE REPORT

A 52-year-old male presented with complaints of upper abdominal pain and a retrosternal burning sensation for 2 weeks. He consulted a general practitioner and was advised to have an ultrasound of his abdomen. The ultrasound revealed a 3.7 cm x 3.3 cm hypoechoic mass lesion in the mid pole of the left kidney, suggestive of renal cell carcinoma. The other organs were normal. He was referred to our department for the same. He came to us with suspicion of renal cell carcinoma and was very anxious.

On reviewing his history, he did not have hematuria or any other urinary complaints. He did not have any comorbidities

Figure 1. An ultrasound showing a hypoechoic mass lesion in the mid pole of the left kidney.



KEYWORDS: Renal pseudotumor, hypertrophied column of Bertin, renal mass

CORRESPONDENCE: D. Paul Vincent, MBBS, DNB (Surgery), DNB (Urology), Consultant Urologist, MIMS Hospital, Kottakkal, Malappuram District, Kerala, India 676503 (pauldevincent@rediffmail.com)

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Figure 2. An axial image showing a hypertrophied column of Bertin.

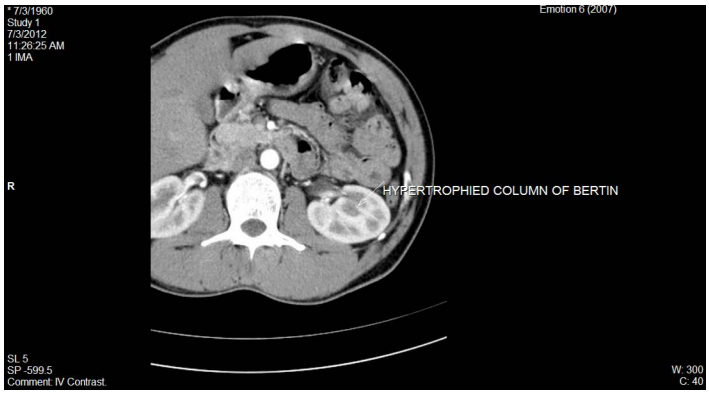

Figure 3. A saggital image showing a hypertrophied column of Bertin.

or prior surgeries. He was not a smoker. A contrast-enhanced computed tomography (CT) scan was done to evaluate the left renal mass. On CT scan, a small isodense projection was noted from the renal parenchyma into the renal sinus and was indenting the renal sinus in the mid-portion of the left kidney. On contrast CT, there was similar enhancement of the rest of the parenchyma. The rest of the study was unremarkable. He was reassured that this appearance is due to a congenital condition, and he was relieved of his anxiety.

DISCUSSION

Renal pseudo tumors simulate neoplasm on imaging but histologically they contain normal renal tissue. Previously they were more commonly seen at intravenous urography (IVU), but it is also possible to see during an ultrasound and CT. This can occur due to several reasons, both congenital as well as acquired. The various developmental reasons are a hypertrophied column of Bertin, fetal lobulation, dromedary hump, splenorenal fusion, and cross-fused ectopic kidney [2]. The acquired causes are renal sinus lipomatosis, xanthogranulomatous pyelonephritis, renal tuberculosis, nodular compensatory hypertrophy, sarcoidosis, actinomycosis, Wegener granulomatosis, arteriovenous malformation, and compression by blood vessels.

It has been rarely described after acute necrotising pancreatitis [7]. A case of retained gauze after partial nephrectomy appearing as a hyperechoic renal mass was diagnosed at surgery [3]. In another case of polycystic kidneys, a retained sponge mimicking a renal mass has also been described. Pathologic alterations due to abscesses, hematomas, and pyelonephritic changes are not included as they represent some pathology.
A hypertrophied column of Bertin is one of the congenital causes of renal pseudo tumor. The columns of Bertin are normal structures seen in the renal cortical tissue. In 1744, French anatomist Exupere Joseph Bertin explained that the renal cortex extended in radial fashion surrounding the renal pyramids. These are called columns of Bertin. Hypertrophied columns of Bertin represent a central unfolding of cortical tissue for varying depths within the renal medulla [2]. Hypertrophied columns of Bertin are actually not hypertrophic but they occur due to an incomplete fusion of the fetal lobes. They result from fusing two adjacent septa into a large column with double thickness [8]. Unlike fetal lobulation, this mass effect is entirely internal.

Usually they are noted in the mid pole with a predilection toward the left side. In 18% of cases, it can be bilateral. More commonly, it is seen in duplex kidneys between the renal pelvis. The ultrasonographic (USG) features of hypertrophied columns of Bertin are the lateral indentation of the renal sinus, with the largest dimension being less than 3 cm, continuous with the renal cortex, and the same echogenicity as that of the cortex and clearly defined from the renal sinus [4,8]. On the ultrasound, characteristic splaying of the central sinus echoes in a claw-like fashion is noted, called as the "split sinus sign" [5]. Contrast-enhanced ultrasound has been suggested as an alternative to CT and magnetic resonance imaging (MRI) by demonstrating the same perfusion and reperfusion as that of the normal parenchyma after microbubble breakage [1,6]. A nuclear scan is diagnostic, as it reveals a uniform uptake of the radiotracer without any cold areas. Angiograms, if performed for any other reason, will show normal renal vasculature with an absence of neovascularity.

The importance of diagnosing this condition is that it is benign and does not warrant any further invasive procedures such as biopsy or surgery.

CONCLUSION

With more emphasis on nephron-sparing surgery nowadays, it is of the utmost importance to diagnose renal pseudo tumors before embarking on radical surgery. With the availability of advanced imaging technologies, most of the cases can be diagnosed preoperatively with certainty.

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