

Is prostate involved in adult polycystic  
disease of the kidney?

(A case report)

هل تصاب البروستات في مرض الكلى متعددة  
الأكياس للبالغين؟

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# Is prostate involved in adult polycystic disease of the kidney? (A case report)

## Summary:

Adult polycystic disease of the kidney involves the liver in 25%, but very rarely involves the pancreas. Involvement of prostate has not, to our best knowledge, been described. Forty-five years infertile old man with polycystic kidneys, which involved the liver, pancreas and prostate described in this report with review of literature.

## الخلاصة

مرض الكلى الكيسي المتعدد في البالغين يصيب الكبد في 25% من الحالات ومن النادر جداً إصابة المثكلة. إصابة البروستات، لمعلوماتنا لم توصف سابقاً. في هذا التقرير يتم تسجيل هذه الحالة في 45 سنة ذكر عقيم مع مرجعة المقالات.

**Key words: polycystic kidney disease, polycystic liver, pancreatic cyst, and prostatic cyst.**

## **INTRODUCTION:**

Adult polycystic kidney disease (PKD) affects approximately 1 in 1000 live births. It is the fourth leading cause of kidney failure <sup>(1)</sup>

It is characterized by large cysts in one or both kidneys and a gradual loss of normal kidney tissue, which can lead to chronic renal failure. <sup>(2)</sup> Two

genes associated with autosomal dominant PKD. The first was located on chromosome 16 and labeled PKD1. PKD2 was localized to chromosome 4

<sup>(1)</sup>. The proteins these two genes produce polycystin-1 and polycystin-2 <sup>(2,3)</sup>

when both of these genes are normal, the proteins they produce work together to foster normal kidney development and inhibit cyst formation.

These proteins are an integral membrane protein involved in cell-cell interactions and cell-matrix interactions. Their role in the normal cell may

be linked to microtubule-mediated functions, such as the placement of Na<sup>+</sup>, K<sup>+</sup>-ATPase ion pumps in the membrane. A mutation in either PKD1 or

PKD2 can lead to cyst formation, <sup>(4)</sup> but evidence suggests that the disease development also require other factors, in addition to the mutation in one of

the PKD genes. Programmed cell death, or apoptosis, may also be invoked in APKD. <sup>(5)</sup>

Autosomal recessive PKD can begin before birth, so it is often called

infantile PKD. Those children usually develop renal failure within a few years.

We report a case of polycystic disease involving liver, pancreas and prostate .To our best knowledge pancreatic involvement is rare and prostatic involvement was not reported in literature.

### **Case report:**

On 20<sup>th</sup> of June 2002 a forty-five years old man presented with upper abdominal pain for 6-months duration, this was associated with lethargy, dizziness and recurrent attack of headache mainly felt in the occipital region. He had history of two attacks of hematuria, which was resolved on medical treatment a year ago. Otherwise no significant illness was elicited in his past history. His father die at age of 60 year with chronic renal failure but he didn't know the cause of it. He is married for last 15 years but he was infertile. He had one brother, who was normal.

On examination: he was pale, emaciated, no leg edema. His Blood Pressure was 180\100mmhg. Pulse rate was 86\min. On abdominal examination there was bilateral palpable kidneys and hepatomegaly of 8cm below costal margin, irregular surface firm in consistency. Other systems examination was unremarkable. Investigations revealed blood urea 160mg\dl serum creatnine 10mg\dl, Hemoglobin 8gm, blood film for red cell morphology showed normocytic normochromic anemia, erythrocyte sedimentation rate 80. Chest X-ray, echocardiography and Electrocardiography were normal.

Abdominal ultrasonography revealed hepatomegaly with multiple cysts involved both lobes of the liver (Figure1), bilateral polycystic disease of the kidneys (Figure 2) two-pancreatic cyst.

Interestingly there was midline prostatic cyst of 2x3cm in size. (Figures 3)

MRI abdomen confirmed the ultrasonic findings. (Figure 4,5)

Supportive therapy was given to the patient and he refused to be put on dialysis program.

## **Discussion:**

Autosomal dominant polycystic kidney disease (ADPKD) is a major, inherited disorder that is characterized by a number of extrarenal manifestations<sup>3</sup>.

It had been estimated that liver involvement occurred in 25% of cases of ADPKD, while pancreatic and ovarian involvement occurred in 10% of cases. Despite Stamm ER administered that there was no statistically significant difference in incidence of ovarian cyst in Patients with ADPDK than the general population.<sup>7</sup>

Cerebral aneurysm also frequently associated with PKD. Its rupture may lead to devastating intracranial hemorrhage.<sup>6</sup>

Morris-Stiff G reported high incidence of abdominal wall hernia among patients with PKD.<sup>8</sup>

Scheff RT administered that patients with chronic renal failure due to polycystic kidney disease have a high incidence of diverticulosis and diverticulitis.<sup>9</sup> In addition there was evidence that mitral-valve prolapse was more frequent in PKD than general population<sup>10</sup>

We didn't come across any report of association of PKD and prostatic cyst, probably this was the 1st report describes the association of prostatic cyst and PKD. Our pt was infertile despite he was marriage for last 15 years.

This may be explained by the effects of the prostatic cyst on the ejaculatory duct and seminal vesicle.<sup>(11)</sup>

Aalame-NM reported a congenital cyst in the midline of the prostate gland that caused obstruction of the ejaculatory ducts leading to infertility.<sup>(11)</sup>

## **Conclusion:**

Prostatic cyst was not reported previously to be a feature of PKD, this is probably the 1<sup>st</sup> report. The prostatic cyst was most likely the cause of the patient primary infertility.

## **References:**

1-Pei-Y; He-N; Wang-K A spectrum of mutations in the polycystic kidney disease-2 (PKD2) gene from eight Canadian kindreds J-Am-Soc-Nephrol. 1998 Oct; 9(10): 1853-60

- 2-Peters,-D-J; Paul,-L-C From gene to disease; from polycystines to polycystic kidney disease Ned-Tijdschr-Geneeskd. 2001 Jan 27; 145(4): 173-5
- 3-Calvet,-J-P; Grantham,-J-JThe genetics and physiology of polycystic kidney disease.Semin-Nephrol. 2001 Mar; 21(2): 107-23
- 4- Somlo,-S; Markowitz,-G-S The pathogenesis of autosomal dominant polycystic kidney disease: an update .: Curr-Opin-Nephrol-Hypertens. 2000 Jul; 9(4): 385-94
- 5- David Woo Apoptosis and loss of renal tissue in polycystic kidney diseases. N Engl J Med 1995; 333:18-25
- 6-Pfohman,-M; and Criddle,-L-M Epidemiology of intracranial aneurysm and subarachnoid hemorrhage J-Neurosci-Nurs. 2001 Feb; 33(1): 39-41
- 7-Stamm ER; Townsend RR; and Johnson AM; Frequency of ovarian cysts in patients with autosomal dominant polycystic kidney disease. Am J Kidney Dis 1999 Jul; 34(1): 120-4
- 8-Morris-Stiff G; Coles G; Moore R; et al Abdominal wall hernia in autosomal dominant polycystic kidney disease.Br J Surg 1997 May;84(5):615-7
- 9- Scheff RT; Zuckerman G; Harter H; et al. Diverticular disease in patients with chronic renal failure due to polycystic kidney disease. Ann Intern Med 1980 Feb;92(2 Pt 1):202-4

10 - Hossack KF; Leddy CL; Johnson AM; et al Echocardiographic findings in autosomal dominant polycystic kidney disease. N Engl J Med 1988 Oct 6;319(14):907-12

11-Aalame-NM; Sulser-T; Egli-U; et al Primary male infertility caused by congenital prostatic cyst: sonographic and magnetic resonance imaging findings Urol-Int. 1998 Oct; 61(1): 58-61

Figurer 1 shows polycystic liver

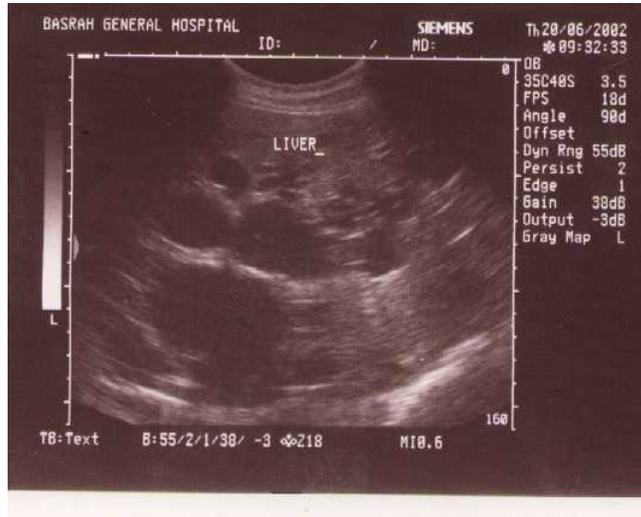


Figure 2 shows polycystic kidney

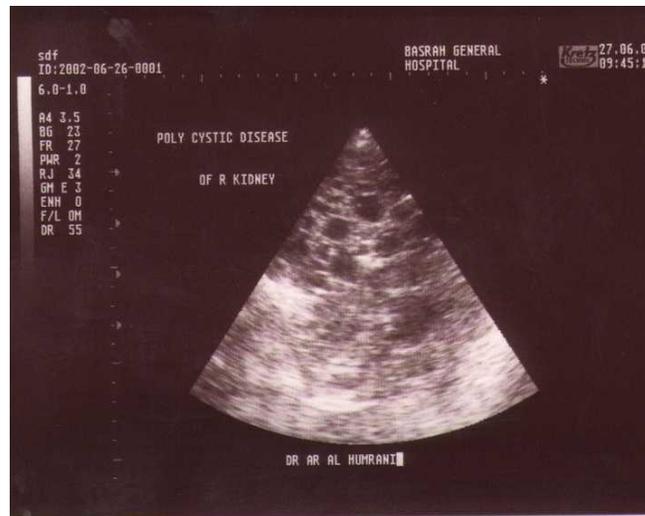


Figure 3 shows prostatic cyst on ultrasonic exam

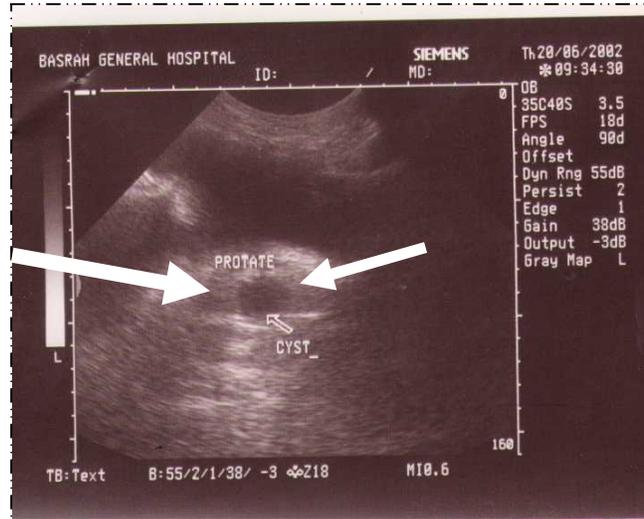


Figure 5 MRI shows prostatic cyst and polycystic kidneys



Figure 4 MRI study shows polycystic kidneys

