RUPTURED RENAL ARTERY ANEURYSM DURING PREGNANCY

(A Case Report with review of literature)

by

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Introduction

Sudden spontaneous rupture of renal artery aneurysm in pregnancy is a rare life threatening event. In all 13 cases of ruptured renal artery aneurysm associated with pregnancy have been hitherto reported in the literature (Pedowitz and Parell, 1957; Burt *et al*, 1956; Cohen *et al*, 1972; Saleh and McLead, 1977 and Patterson, 1973). Of these, only 3 survived the episode of rupture after undergoing nephrectomy of the affected kidney (Burt *et al*, 1956; Cohen *et al*, 1972; Saleh and McLead, 1977). There was only 1 fetal survival. Moreover, of these 13 only 1 had presented with total intermittent hematuria due to ruptured neurysm in pelvis of kidney (Cohen *et al*, 1972).

This report presents an unique case of ruptured renal artery aneurysm who presented with massive hematuria at term and survived without any surgical intervention, in all probability, by spontaneous closure of the defect. The fetus also survived. No such case earlier has been reported from India.

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CASE REPORT

A 32 year old Hindu female gravida 4, para 2 was brought to the hospital at term, at midnight of 12th September, 1981. She complained of passing frank and large amount of blood when she went for urination. The bleeding was so profuse that patient thought it to be vaginal bleeding and start of labour as her expected date of delivery was 16th September, 1981. Her antenatal period and previous pregnancies had been uneventful. On examination she was pale, pulse 120/minute and B.P. 100/70. She had vertex presentation with floating head. Her vulva was soaked with continuously pouring out blood. Initial diagnosis of antepartum hemorrhage was made. Initial rapid blood transfusion was started and vaginal examination in operation theatre followed by caesarean section, if necessary, was planned. But to our utter surprise as soon as catheter was put into urethra almost frank red coloured blood gushed out. Vagina was clear and cervical os closed. The patient obviously had massive hematuria and not antepartum hemorrhage.

Patient continued to pass very dark coloured urine through catheter and also had intermittent pain in left flank. The next massive bout of hematuria occurred ten hours later. The blood came gushing out through and around catheter. She lost approximately 900 ml of blood in a span of 15-20 minutes and her B.P. fell to 80/60, rapid blood transfusion were given to combat shock. The dark coloured urine continued. Patient also had brown coloured vomiting containing slight blood.

Possibility of renal calculus, hemorrhagic pyelitis and defibrination syndrome was thought

of. But investigations for bleeding diathesis were in normal limits. Intravenous pyelography done on September 14, revealed markedly delayed excretion on left side. Next day cystoscopy revealed normal bladder and blood efflux from left ureteral orfice. Retrograde left pyelography showed distorted calyceal pattern and a probable space occupying lesion between middle and lower calyx.

On September 16, the labour was induced after stabilization of the patient by artificial rupture of membrane and oxytocin. She delivered a healthy male child. The patient had postpartum hemorrhage with blood pressure falling to 80/50 mm Hg and Blood transfusion had to be given once again. The hematuria then diminished gradually.

In postpartum period patient had oliguria lasting for two days and resulted into high B.U.N. (44 mg%) and creatinine (2.7 mgm%) levels. It was followed by a transient short phase of polyuria with B.U.N. and creatinine levels returning to normal. On September 19, patient had severe hematemesis with gastric bleeding lasting for a day because of stress induced erosive gastritis as gastroscopy showed multiple bleeding erosions all over the stomach.

Following all this patient had prolonged left kidney infection which took long time of antibiotic therapy to clear off. The excretory urogram repeated on September 28, showed a possible space occupying lesion in hilar part of left kidney with pressure over left ureter also.

Eight weeks later superior mesenteric and bilateral selective renal arteriography was performed. The right renal and superior mesenteric arteriography was normal. The branch of left renal artery showed three aneurysmal dilatations of approximately 12, 6 and 4 mm diameter. There was relative ischemia of the lower half of left kidney (Fig. 1). The space occupying lesion in earlier pyelographs was probably due to intrarenal hematoma due to bleeding from one of these aneurysms. Earlier renal ultrasonography failed to reveal the possibility of arterial aneurysm.

The patient is now well with repeated sterile urine culture and normal blood pressure.

Discussion

Incidence of renal artery aneurysm, as based on autopsy studies is 0.01 per cent. The radiological incidence, however, ranges between 0.01 to 9.7 per cent (Altebarmarian *et al*, 1979). The spectrum of clinical manifestation of RAA may vary from being asymptomatic to fatal rupture. Most lesions are clinically silent until complications occur. Pain, hematuria, and hypertension due to renal ischemia may be other clinical manifestations. At times palpable mass, abnormal pulsations, murmur or bruits are detected. Renal infarction leading to ischemic atrophy due to microembolisation from the aneurysm has also been reported (Martin, 1980). Eggshell calcification when present in aneurysmal wall may suggest the diagnosis on plain film. But arteriographic study as the only method to confirm the diagnosis.

The risk of rupture of arterial aneurysm has been reported to be increased during pregnancy (Pedowitz *et al*, 1957), when size of aneurysm is more than 2.5 cms and when it is associated with hypertension (Hageman and Smith, 1978).

Pedowitz (1957) reviewed the subject of ruptured renal artery aneurysm with pregnancy and collected 10 cases from the literature till then. Since then only 3 more cases have been reported in the literature by Cohen *et al* (1982); Saleh and McLead, 1977 and Patterson (1973). The factors responsible for increased risk of rupture include gravid hormonal effect resulting into arterial weakness, hemodynamic alteration causing more strain on the wall of aneurysm and increased intra-abdominal pressure (Pedowitz *et al*, 1957; and Burt *et al*, 1956). The role of direct pressure by pregnancy induced hydropelvis on renal artery aneurysm situated at hilum may be a matter of conjecture in our case. But despite increased risk of rupture during pregnancy the rarity of such reports in the literature along with increasing fre-

quency of their recognition is surprising.

Because of little clinical consciousness, such arterial aneurysmal rupture (aortic, splenic and renal) are mostly recognised either during autopsy or after surgery (Pedowitz *et al,* 1957 and O'Grady *et al,* 1977). Furthermore, scant attention is given to such entities associated with pregnancy even in obstetrical teachings and literature (Pedowitz *et al,* 1957; and Donald, 1977). Consideration of more common obstetric causes of hemorrhage and shock may delay the diagnosis.

High index of suspicion and familiarity with the clinical picture may help early detection. The symptoms and signs of ruptured renal artery aneurysm with pregnancy are presented in Table I. The typical complaint is flank pain with signs of shock or impending shock in late pregnancy. Only 1 of the 14 cases (including present case) had antecedent hypertention (Patterson, 1973).

TABLE I

Symptoms and Signs in 14 Cases of Ruptered RAA with Pregnancy

Symptoms and Signs	Number
Pallor or Shock	13
Flank Pain	12
Tenderness	3
Mass or Fullness	4
Rigidity	2
Hematuria	2
Hypertension	1

In all previous surviving patients nephrectomy of the affected side was performed. As regards the present case, the indication of surgical intervention may be a matter of debate. Hageman and Smith (1978) have suggested, as in our case, that an asymptomatic renal artery aneurysm less than 1.5 cms in diameter when patient is not further contemplating pregnancy, may be safely left in situ to be observed with serial angiography. While on the other hand spontaneous closure of rupture and non-calcification of the lesion and young age of patient are the indication of surgery.

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See Fig. on Art Paper II