Rupture of renal angiomyolipoma during pregnancy: A case report

Madam,

Renal angiomyolipomas (AMLs) are uncommon benign tumors composed of fat cells, smooth muscle cells, and blood vessels.\(^1\)\(^,\)\(^2\) Although regarded as benign, their coexistence with pregnancy makes it more prone to increased vascularity and subsequent rupture.\(^3\)\(^,\)\(^4\) The incidence of renal AML is 0.3% in the general population and represents 3% of solid renal masses,\(^5\) being even more frequent during pregnancy.\(^5\) We report a case of parturient with incidentally diagnosed AML [Figures 1-2] of right kidney and therapeutic challenges in management.

A 30-year-old primigravida presented to emergency at 32 weeks of gestation with history of sudden onset of severe low back pain and pain in right flank area. An ultrasound revealed a heterogeneous upper pole AML of the right kidney measuring 18.5 cm × 11.5 cm and a viable 32 weeks of intrauterine gestational sac. Magnetic resonance imaging (MRI) study showed a retroperitoneal collection of blood suggestive of rupture of this tumor [Figures 2 and 3]. An emergency caesarean section along with right radical nephrectomy was planned. On preoperative evaluation, the patient was American Society of Anaesthesiologists class I physical status and her medical history was not significant. On cardiovascular examination, her blood pressure was 90/60 mmHg and tachycardia with heart rate of 160/min. Airway examination revealed no abnormality. The baseline hemogram was hemoglobin 7 g/dL, total leucocyte count 20,000, and platelet count 263,000. In coagulation profile, prothrombin time international normalized ratio was 1.6 and activated partial thromboplastin time was 32 s.

The patient was monitored with standard monitors, and an arterial line was inserted under local anesthesia. After adequate preloading, General anaesthesia was induced with intravenous glycopyrrolate, ondansetron, and etomidate; endotracheal intubation was accomplished by intravenous atracurium. Anesthesia was maintained with sevoflurane, oxygen, and nitrous oxide. Intraoperatively, vitals of the patient were stable. The total blood loss was 1500 mL including 400 mL of retroperitoneal collection and was replaced with 2 units of packed red blood cells, 4 units’ fresh frozen plasma, and crystalloids. Arterial blood gas analysis was within normal limits. A 2-kg male baby was delivered with Apgar score between 5 and 7 and analgesia was maintained with intravenous fentanyl. Right radical nephrectomy was then completed and the patient was electively ventilated for 12 h and extubated afterwards.

AMLs are most commonly found in the kidney, the other sites being liver spleen, uterus, and fallopian tubes. Renal AMLs have a greater tendency to rupture during pregnancy,\(^3\)\(^,\)\(^4\) which is believed to be due to increased expression of estrogen and progesterone receptors in AMLs.\(^6\) The mean age of parturient in these cases was 30 years with mean gestation of 29 weeks.\(^3\) Palpable abdominal mass, hematuria, and flank pain are the main symptoms and acute severe shock may occur due to spontaneous rupture of the tumor. Differential diagnosis must be established in such cases with rupture uterus, renal cell carcinoma, spontaneous rupture of kidney with hydronephrosis, spontaneous rupture of aneurysm or renal vessels, and other vascular accidents.
Thus, it is mandatory that routine abdominal scans in pregnancy should include the kidney for any associated vascular abnormality. If any pathology is noted, MRI should follow. Asymptomatic tumors less than 4 cm in pregnant patients are followed up with periodic ultrasound and computed tomography scans. For symptomatic cases with bilateral lesions, treatment is selective arterial embolization or partial nephrectomy. In our case as the patient was actively bleeding retroperitoneally and with unstable hemodynamics, emergency cesarean section and radical nephrectomy were planned simultaneously. Hence, such cases present a unique challenge and require a multidisciplinary team, along with timely and appropriately adapted intervention with the goal of preventing fatality, preserving renal function, and preventing fetal loss if possible.

**Declaration of patient consent**

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

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**Conflicts of interest**

There are no conflicts of interest.

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