

Adult Mesoblastic Nephroma: A Case Report

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Abstract

Mesoblastic nephroma is a rare entity in adulthood. We report a case of mesoblastic nephroma in a 35-year-old woman who presented with left flank pain. Computed tomography images favored a soft tissue mass in the upper pole of the left kidney. The lesion was excised and sent for pathological analysis. Pathological and immunohistochemical studies favored a diagnosis of mesoblastic nephroma.

Keywords: Renal cell carcinoma, Mesoblastic nephroma, Nephrectomy

Introduction

Mesoblastic nephroma (MN) is a benign renal tumor most frequently seen in infancy and rarely seen in adulthood. Since it is not possible for clinicians to differentiate adult MN from renal cell carcinoma (RCC) by clinical evaluation or imaging studies, surgical removal still remains the gold standard for definite diagnosis. Here we report a case of MN in an adult, which was confirmed by pathological studies following partial nephrectomy.

Case report

A 35-year-old woman presented with left flank pain. Upon physical examination, the patient had left flank tenderness. She also had a positive history of hypertension. Routine

laboratory tests were normal except for microscopic hematuria in the urine analysis. Sonography reported a 47×35-mm mass in the superior part of the left kidney, which favored a left adrenal mass. Additional laboratory tests which included dehydroepiandrosterone and vanillyl mandelic acid were unremarkable. Computed tomography revealed a 5×6×3.5-cm well-defined soft tissue mass in the upper pole of the left kidney with areas of central necrosis and spots of internal calcification. When we compared pre- and post-contrast images, we found a slight enhancement in the mass. The perinephric fat and adrenal gland were intact (Figures 1A, B). Through a midline abdominal incision, the left kidney was identified and released

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Figure 1A. Renal mass located in the upper pole of the left kidney.

from the adjacent tissues. A relatively round, smooth lesion which measured 4×5×3 cm was adhered to the upper pole of the left kidney and was isolated from the left adrenal tissue. The lesion was excised with a tissue margin of about 2 cm from the adhering renal tissue and sent for pathological analysis. The patient was seen in follow-up 6 and 12 months after surgery. At follow-up, abdominopelvic sonography was done and no tumor recurrence was detected.

Pathologic findings

Gross pathological examination revealed a well-circumscribed, unencapsulated creamy-white, firm solid mass that measured 6×5×4 cm and did not extend to the surrounding renal tissue. Macroscopic section showed a whorled appearance.

Microscopic examination (H&E) showed tumor tissue separated from the uninvolved kidney portion by a band of fibrous and smooth muscle

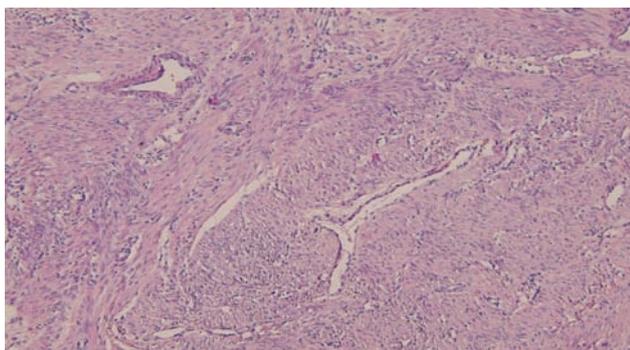


Figure 2. Tumor composed of interlacing spindle cells with dilated thin-walled blood vessels (H&E, 100×).

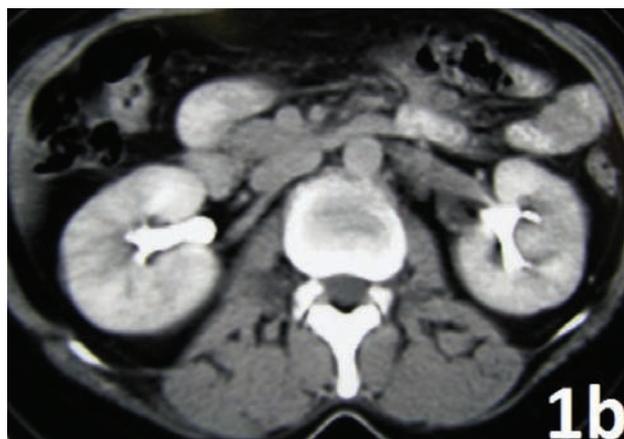


Figure 1B. Normal enhancement of the left kidney.

tissue. The tumor contained thick interlacing bundles composed of spindle cells with bland, elongated nuclei (Figure 2). There were dilated thin-walled vessels and some glomeruli and renal tubules appeared entrapped (Figures 2, 3). No hemorrhage, necrosis or significant mitotic activity were seen.

Immunohistochemistry (IHC) was done on formalin-fixed and paraffin-embedded tissue. The result of IHC staining revealed cytoplasmic positivity of the spindle cells for vimentin and desmin. Diffuse nuclear positivity for estrogen receptor and progesterone receptor were also identified (Figure 4). Staining for S-100 and HMB-45 (Figure 5) were negative.

These features favored a diagnosis of MN. The pathological study also revealed that the surgical margins were free of tumor.

Discussion

Mesoblastic nephroma, first described by

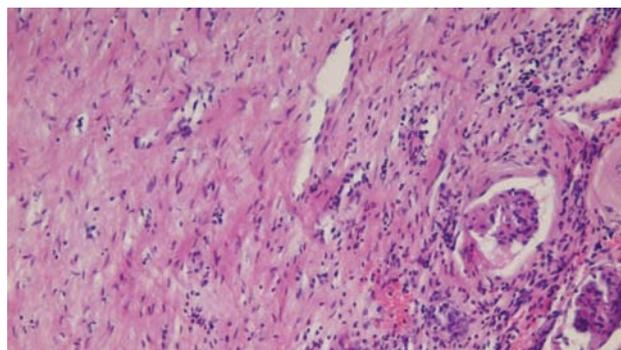


Figure 3. Focal entrapment of glomeruli and tubules (H&E, 200×).

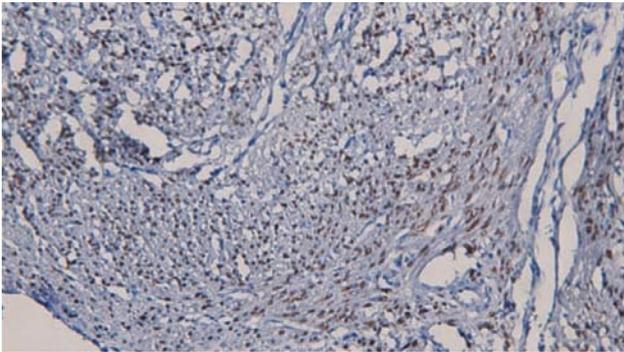


Figure 4. Nuclear immunoreactivity for progesterone receptor (original magnification 200×).

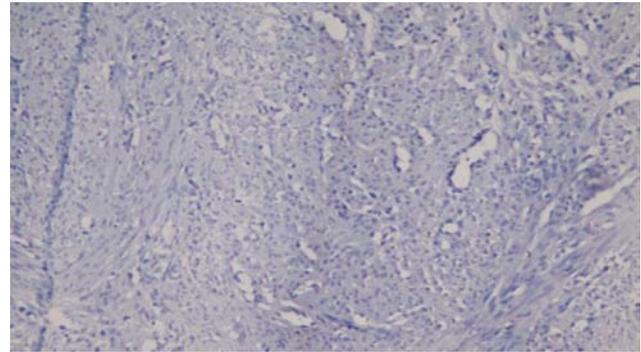


Figure 5. The cells show no immunoreactivity for HMB-45 (original magnification 200×) which rules out the diagnosis of leiomyoma in the kidney.

Bolande et al.¹ in 1967, is a benign renal tumor most commonly seen in infancy which accounts for approximately 5% of all childhood renal tumors. Tumors that appear in infancy have an equal sex distribution and are uncommon in patients older than 6 months of age.

Adult MN was first described by Block et al.² in 1973. It is a rare entity in adulthood and according to the literature, as of 2007, 38 cases of adult MN had been reported.³ To our knowledge this is the second case of adult MN that has been reported in Iran. Evaluation of the cases reported to date reveals that the adult type has a broad age range (19 to 78 years) at presentation, and unlike the infancy type, is more common among females.^{3,4} Seventy-five percent of patients present with symptoms such as flank pain, hematuria or signs of infection, whereas the remaining 25% are identified incidentally from imaging studies.

Adult MN has two histological types. The classic variant has an epithelial component consisting of tubules and cysts, and a stromal component composed of fibroblasts, myofibroblasts and smooth muscle cells. Although the cellular (atypical) variant shows the same histology, it also contains hemorrhaging, necrosis and stromal hypercellularity which are not seen in the classic variant.⁵ The major differential diagnoses of adult MN include renal cell carcinoma, angiomyolipoma, leiomyoma, adult Wilm's tumor and nephrogenic fibroadenoma. Due to the whorled appearance of macroscopic sections and the interlacing bundles of spindle cells on microscopic evaluation in our case, the first

differential diagnosis was leiomyoma, which was later ruled out because of the lack of immunoreactivity for HMB-45. Imaging modalities are not able to definitely diagnose adult MN and differentiating this benign tumor from RCC by radiological modalities is still a challenge.⁶ The prognosis is excellent after complete surgical removal; however, local recurrence may occur due to incomplete surgical resection. Post-operative chemotherapy or radiotherapy are not indicated and may result in morbidity.⁷ According to the literature, local tumor recurrence with invasion to the liver has been reported 21 years after tumor removal.⁸ In another report by Moslemi⁹, recurrence of the tumor was detected at the nephrectomy site 2 years after surgical resection and the patient subsequently died after refusing chemoradiotherapy. Due to the extreme rarity of MN in adulthood, its level of clinical suspicion is low and the ability to differentiate MN from other renal tumors is limited. Accordingly, surgical removal and subsequent pathological studies are still the gold standard for diagnosis and treatment. According to previous reports in addition to our study, the tumor can be treated successfully by complete surgical removal via either radical or partial nephrectomy. Although cases with aggressive or fatal courses are rare, we recommend regular follow-up to avoid missed diagnoses and inadequate treatment of such cases.

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