

Case Report

Renal Hilar Capillary Hemangioma Mimicking Renal Cell Carcinoma: A Rare Diagnostic Pitfall

Tripathy N¹; Neelagar K¹; Mohan Keshavamurthy¹; Suneet Hora²; Nagarjun BR²; Karthik rao B¹; Rahul CR¹

¹Department of Urology, Fortis Hospital, Bannerghatta Road, Bangalore, India.

²Department of Pathology, Fortis Hospital, Bannerghatta Road, Bangalore, India.

***Corresponding author:** Nagendra Tripathy, Consultant urologist, Department of urology, Fortis hospital, Bannerghatta Road, Bangalore, India. Tel: +91 7760785646

Email: tripathy9@yahoo.com

Received: August 19, 2026

Accepted: September 22, 2026

Published: September 29, 2026

Abstract

Background: Renal hilar capillary hemangioma is an exceptionally rare benign vascular neoplasm that may closely mimic Renal Cell Carcinoma (RCC) on imaging.

Case presentation: A 58-year-old man undergoing evaluation for obstructive jaundice was found to have a distal common bile duct lesion and an incidental left renal hilar mass measuring 8.3×7.5×7.2 cm. PET-CT demonstrated low-grade FDG uptake. Because of its size, hilar location, and indeterminate radiological characteristics, the lesion was considered suspicious for RCC, angiomyolipoma, or retroperitoneal liposarcoma. The patient underwent robotic radical nephrectomy followed by pancreaticoduodenectomy. Histopathology revealed renal hilar capillary hemangioma, while the biliary lesion was confirmed as pancreatobiliary-type perampullary adenocarcinoma.

Conclusion: Renal hilar capillary hemangioma remains a rare diagnostic pitfall. Histopathological examination remains the gold standard for diagnosis when imaging cannot reliably exclude malignancy.

Keywords: Capillary hemangioma; renal hilum; renal cell carcinoma; incidental renal mass; vascular tumour; radical nephrectomy.

Introduction

Hemangiomas are benign vascular neoplasms commonly encountered in the skin and liver but are exceedingly uncommon within the kidney [1-3]. Renal hemangiomas are traditionally classified into capillary, cavernous, and anastomosing subtypes. Although biologically benign, they frequently create significant diagnostic uncertainty because radiological findings overlap substantially with malignant renal neoplasms.

Recent clinicopathological studies have demonstrated that intrarenal hemangiomas are often discovered incidentally and are commonly managed surgically because imaging raises concern for RCC [1]. Lesions arising from the renal hilum are particularly uncommon and may distort hilar anatomy, creating the appearance of an invasive malignant tumour.

We present a rare case of renal hilar capillary hemangioma discovered during evaluation of obstructive jaundice. The lesion closely mimicked RCC and required surgical excision for definitive diagnosis.

Case presentation

A 58-year-old male with diabetes mellitus, hypertension, and documented single-vessel coronary artery disease presented with progressive jaundice and vague abdominal pain of one month's duration.

Contrast-enhanced CT revealed an enhancing distal common bile duct lesion with upstream biliary dilatation and an incidental left renal hilar mass measuring 8.3×7.5×7.2 cm. PET-CT demonstrated metabolically active distal CBD wall thickening and a large mixed-density renal hilar lesion with low-grade FDG uptake (SUV max approximately 4.8). Differential diagnoses included RCC, angiomyolipoma, and retroperitoneal liposarcoma.

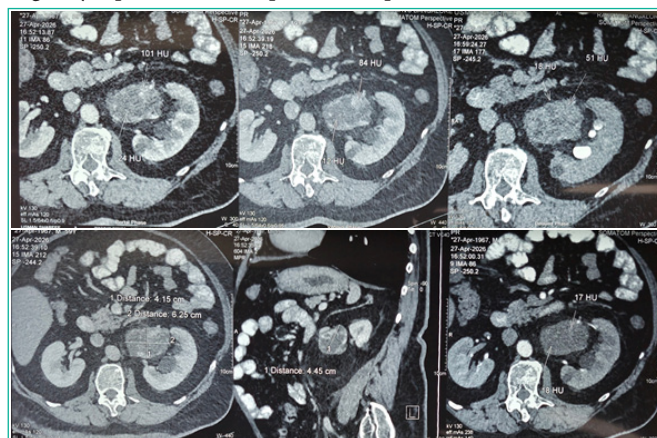


Figure 1: A large mixed attenuation fat containing as well as heterogeneously enhancing lesion with solid components seen in left renal hilum extending to infra hilar region measuring 7.5×8×9 cm possibly arising from renal hilar/ perihilar tissue.



Figure 2: Gross morphology – Left kidney with adrenal and ureter. A unifocal tumour seen in the hilar region of left kidney measuring 4.3×3×2.7 cm. The tumour appears mixoid and focally grey brown. No necrosis seen.

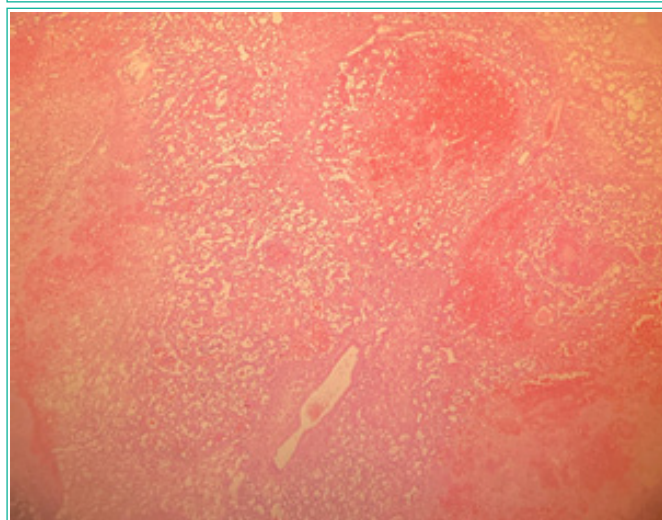


Figure 3: 20x magnification – Tumour is characterized by benign vascular neoplasm with slit like vascular spaces lined by endothelial cells.

Following multidisciplinary tumour board discussion, definitive surgical management was recommended. The patient underwent robotic left radical nephrectomy followed by pancreaticoduodenectomy and feeding jejunostomy.

Gross examination demonstrated a well-circumscribed hilar lesion. Microscopy revealed lobules of capillary-sized vascular channels lined by bland endothelial cells without atypia, mitotic activity, or necrosis. Areas of stromal oedema, haemorrhage, and focal extramedullary haematopoiesis were identified. The final diagnosis was renal hilar capillary hemangioma. Histopathological examination of the pancreaticoduodenectomy specimen demonstrated moderately differentiated pancreatobiliary-type periampullary adenocarcinoma (pT3bN1).

Discussion

Renal hemangiomas are rare benign vascular tumours.

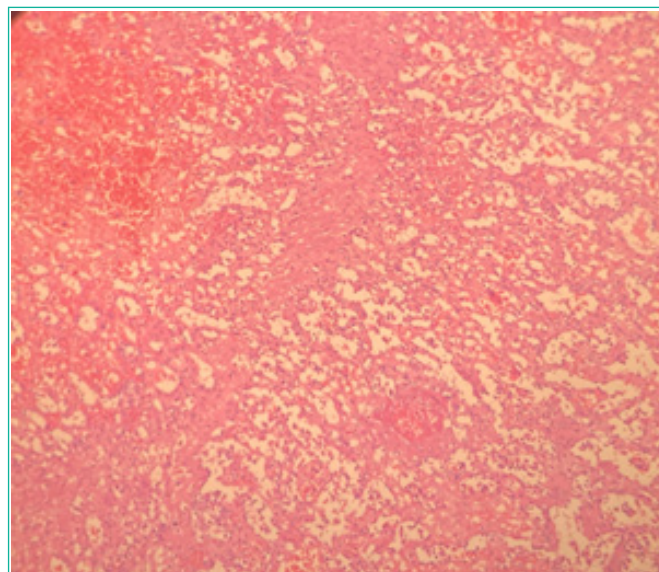


Figure 4: 20x magnification – areas of hemorrhage and infarction seen. The postoperative course was uneventful.

Historically, knowledge regarding these lesions has been derived primarily from isolated case reports. The largest contemporary series evaluating 39 intrarenal hemangiomas confirmed their benign biological behaviour and demonstrated an absence of recurrence or progression during follow-up [1].

The major challenge lies in their radiological similarity to malignant renal tumours. Hypervascular enhancement, heterogeneous internal architecture, collecting-system distortion, and occasional FDG uptake may all mimic RCC. Previous reports have documented preoperative diagnoses of RCC, urothelial carcinoma, angiomyolipoma, retroperitoneal sarcoma, and even paraganglioma [2-6].

Several features complicated diagnosis in the present case. The lesion arose from the renal hilum, distorted hilar anatomy, demonstrated indeterminate PET-CT findings, and was discovered in a patient simultaneously undergoing evaluation for a proven malignancy elsewhere. These factors significantly increased suspicion for a synchronous malignant renal neoplasm.

Histopathological examination remains the diagnostic gold standard [1-5]. Characteristic findings include capillary-sized vascular channels lined by a single layer of bland endothelial cells, absence of cytological atypia, and lack of mitotic activity or necrosis. Areas of haemorrhage, thrombosis, oedema, and extramedullary haematopoiesis may be encountered.

The synchronous occurrence of periampullary adenocarcinoma and renal hilar capillary hemangioma appears exceptionally uncommon. Although likely coincidental, it substantially influenced surgical decision-making and further complicated preoperative diagnosis.

Literature review

Published reports consistently demonstrate that renal hilar and parapelvic capillary hemangiomas are frequently mistaken for malignant renal masses. Most patients ultimately undergo partial

Table 1: Literature review

Author	Year	Location	Preoperative Diagnosis	Treatment	Final Diagnosis
Haas et al	1998	Renal hilum	Renal hilar mass	Nephrectomy	Cavernous hemangioma
Vasquez et al	2012	Near renal artery	Pseudoaneurysm	Excision	Capillary hemangioma
Oikawa et al	2014	Renal hilum	Renal tumour	Radical nephrectomy	Capillary hemangioma
Virgili et al	2003	Renal hilum	Solid renal mass	Surgical excision	Cavernous hemangioma
Jiang et al	2022	Renal hilum	Paraganglioma	Nephron-sparing nephrectomy	Capillary hemangioma
Geramizadeh et al	2019	Renal pelvis/hilum	Urothelial carcinoma	Robotic radical	Cavernous hemangioma
Present case	2026	Renal hilum	RCC/AML/Liposarcoma	Robotic nephrectomy	Capillary hemangioma

or radical nephrectomy because preoperative distinction from RCC remains difficult. Contemporary literature suggests that awareness of this rare entity may help broaden the differential diagnosis of hypervascular hilar renal masses, although histological confirmation is usually required.

A review of published cases reveals recurrent themes: incidental discovery, indeterminate imaging, hilar or parapelvic location, and definitive diagnosis only after surgery. Importantly, no convincing evidence of malignant transformation or recurrence following complete excision has been reported.

A synopsis of available case reports are detailed in the following table,

Learning Points

- Renal hilar capillary hemangioma is an exceptionally rare benign vascular tumour.
- Imaging findings frequently overlap with RCC and other hypervascular renal neoplasms.
- PET-CT may not reliably distinguish benign vascular lesions from malignancy.
- Histopathology remains the gold standard for diagnosis.
- Radical/Partial nephrectomy may be necessary when malignancy cannot be confidently excluded.

Conclusion

Renal hilar capillary hemangioma is an exceptionally rare benign vascular neoplasm that may closely mimic RCC on contemporary imaging. Hilar location further complicates diagnosis because of distortion of vascular and collecting-system anatomy. When malignancy cannot be confidently excluded, surgical excision may be required for definitive diagnosis. Awareness of this rare entity may help clinicians consider benign vascular tumours in the differential diagnosis of hypervascular hilar renal masses.

References

1. Faraz M, et al. Primary intrarenal hemangioma – A series of 39 cases. *Ann Diagn Pathol*. 2025.
2. Geramizadeh B, Shams N, Iranpour P, Rajabi MJ. Renal Capillary Hemangioma Mimicking Urothelial Carcinoma. *Iran J Pathol*. 2019.
3. Al-Maghrabi HA, Al Rashed AS. Challenging Pitfalls and Mimickers in Diagnosing Anastomosing Capillary Hemangioma of the Kidney. *Am J Case Rep*. 2017.
4. Huynh QH, et al. Renal capillary hemangioma mimicking renal cell carcinoma: A diagnostic pitfall. *Urol Case Rep*. 2026.
5. Jiang X, et al. Renal hilar capillary hemangioma masquerading as paraganglioma. *Front Oncol*. 2022.
6. Lee HS, et al. Radiologic Findings of Renal Hemangioma: Report of Three Cases. *Korean J Radiol*. 2000.