

## Portal Vein Thrombosis in Gastric Carcinoma Patient: A Rare Entity

**Arun Kumar Gaur<sup>1</sup>, Rajul Rastogi<sup>2\*</sup>, Pankaj Kumar Das<sup>3</sup> and Swati Soni<sup>4</sup>**

<sup>1</sup> Senior Resident, Department of Radiodiagnosis, Teerthanker Mahaveer Medical College and Research Center, Moradabad, Uttar Pradesh, India

<sup>2</sup> Associate Professor, Department of Radiodiagnosis, Teerthanker Mahaveer Medical College and Research Center, Moradabad, Uttar Pradesh, India

<sup>3</sup> Postgraduate Resident, Department of Radiodiagnosis, Teerthanker Mahaveer Medical College and Research Center, Moradabad, Uttar Pradesh, India

<sup>4</sup> Intern, Department of Radiodiagnosis, Teerthanker Mahaveer Medical College and Research Center, Moradabad, Uttar Pradesh, India

**\*Corresponding Author:** Rajul Rastogi, Associate Professor, Department of Radiodiagnosis, Teerthanker Mahaveer Medical College and Research Center, Moradabad, Uttar Pradesh, India.

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### Abstract

Gastric carcinoma in advanced stages can directly involve or extend in to adjacent viscera with or without lymph nodal or haematological spread and may be associated with peritoneal seeding or distant dissemination. Though portal vein thrombosis (PVT) secondary to benign causes is common yet it is uncommonly encountered with malignant tumors as well. Malignant PVT is common with hepatic and pancreatic cancer but rare with gastric carcinoma. We report one such case where PVT was due to direct luminal invasion by malignant gastric carcinoma.

**Keywords:** Gastric Carcinoma; Portal Vein Thrombosis

### Introduction

Portal vein thrombosis (PVT) may occur secondary to disturbance in normal physiological circulation of blood in portal vein. Virchow triad explains thrombotic disorders involving circulation as due to alterations in flow, coagulation profile and endothelial injury.

In case of malignant PVT, the underlying process can be direct invasion producing tumour thrombus; hypercoagulable state in paraneoplastic syndrome, and extrinsic compression.

Though hepatic and pancreatic carcinomas are common malignancies associated with PVT, it has also been rarely reported with gastric carcinoma [1]. PVT has not only been reported and recognised retrospectively in post-mortem analysis but can also be detected by imaging studies. Hence, we report a rare case of PVT noted in an advanced case of gastric adenocarcinoma.

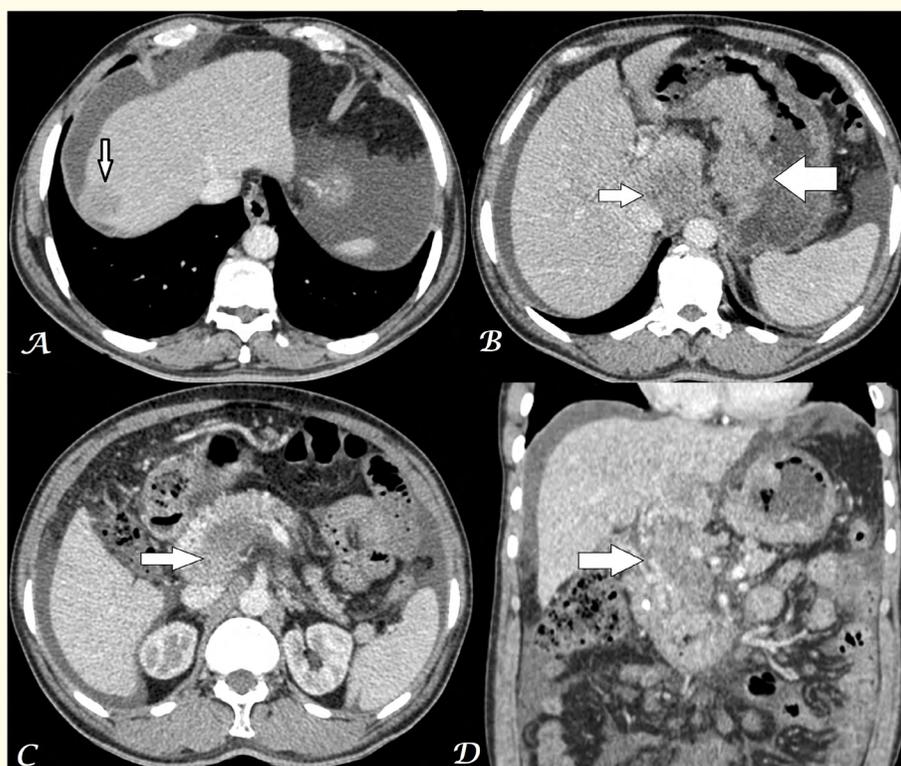
### Case Report

A sixty-year male patient presented to the outpatient department of our hospital with complaints of pain epigastrium, loss of appetite and weight loss of short duration.

On contrast-enhanced computed tomography (CECT) whole abdomen, a moderately-enhancing, polypoidal intraluminal, soft tissue mass with ulceration was noted arising from lesser curvature of gastric body. Multiple nodular lesions of variable sizes were also noted in liver including subcapsular location along with multiple enlarged omental lymph nodes and mild to moderate ascites. Main portal vein was dilated with moderately-enhancing, soft tissue intraluminal mass was noted with extension into superior mesenteric and splenic veins along with pericholecystic collaterals (without gastric or oesophageal collaterals) and mild splenomegaly probably representing acute PVT. The probable spread of tumor to portal vein was through left gastric vein which drains both lesser and greater gastric curvatures before joining portal vein. Significant amount of free fluid was noted diffusely distributed in the multiple compartments of the peritoneal cavity without obvious peritoneal nodules/calcification. Based on the above imaging findings, a diagnosis of gastric adenocarcinoma with nodal and hepatic metastases along with malignant PVT was suggested.

Patient underwent gastric endoscopy which revealed an ulceroproliferative mass in region of gastric body along the lesser curvature with multiple areas of haemorrhagic necrosis without obvious extension in to gastroesophageal junction and gastric antrum. Histopathological confirmation of malignancy was achieved from the gastric as well as hepatic masses.

As final diagnosis of stage-IV gastric adenocarcinoma was achieved, the patient was referred to dedicated oncology center for palliative management. Due to financial constraints and severe ill-health, patient took leave against medical advice to return to his home.



**Figure 1 (A-D):** CECT abdomen axial (A-C) and coronal (D) images show gastric mass along the lesser gastric curvature (B-Thick arrow) associated with hepatic metastases (A and B - arrows); ascites and portal vein thrombosis (C and D - arrows).

## Discussion

Portal vein thrombosis is rare even in advanced gastric carcinoma [1]. It is documented and found that portal and hepatic venous invasion are associated commonly with hepatic and pancreatic cancers.

In literature metastatic invasion of ovaries (Krukenberg's tumors), colon, breasts, bones, meningitis, para-aortic lymph nodes from gastric carcinoma has been well documented and reported [2-6].

In our case report, PVT represents an uncommon CT finding, thus increasing the spectrum of radiological imaging findings in patients of gastric cancers [1,6,7]. There have been few reports in literature describing this uncommon PVT in cases of advanced gastric carcinoma leading to portal hypertension [8,9]. In one case report, Ohyama, et al. reported malignant portal and splenic vein masses showing doppler flow associated with enlarged gastroepiploic vein in patient of advanced gastric carcinoma who died within 2 months of diagnosis [8]. Ghosh, et al. reported a case of metastatic nodal gastric adenocarcinoma causing portal hypertensive gastropathy leading to bleeding esophageal and gastric varices [9].

The presence of pericholecystic collaterals with absence of esophageal and gastric varices in our case suggested main portal trunk and right portal venous obstruction with effective compensation of splenic venous system.

The prognosis of patients with malignant portal vein thrombosis is poorer than those without it. The current accepted mode of management for malignant PVT is surgical resection either in form of tumor thrombectomy or en bloc resection of portal vein with thrombus followed by reconstruction [10]. There have been few recent case report/small case series of portal vein stenting as well for relieving complications related to portal hypertension [10].

To summarize, though PVT thrombosis is uncommon with malignant lesions especially gastric carcinoma yet it should be specifically looked for especially whenever surgical management is contemplated.

## Conclusion

Portal vein thrombosis due to malignant causes is uncommon and PVT with gastric carcinoma is rare. Imaging findings can delineate this abnormality along with the primary tumor. Since presence of PVT may alter management hence it should be excluded in all cases of gastric cancer.

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