

## CASE REPORT

# Extrahepatic biliary obstruction secondary to metastatic esophageal squamous cell carcinoma: An unusual presentation of Courvoisier's law

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**Abstract**

Courvoisier's law states, "In the presence of jaundice and a palpable bladder, the cause is unlikely to be due to stone". Although esophageal squamous carcinoma is known to spread to celiac nodes, there is no description in the literature with it presenting and mimicking the above findings in Courvoisier's Law.

**KEYWORDS**

celiac nodes, Courvoisier's law, esophageal carcinoma

## 1 | INTRODUCTION

Esophageal carcinoma is the eighth most common cancer worldwide with a high mortality, poor prognosis, and high variability based on geographic location. Squamous cell carcinoma is the most common subtype worldwide with an increasing trend of the adenocarcinoma subtype becoming more prevalent in developed countries.<sup>1</sup> Risk factors for squamous cell carcinoma include low socioeconomic status, tobacco use, alcohol, hot beverages, nitrosamines, and vitamin C, E, and Folate deficiencies.<sup>1</sup> The presenting signs and symptoms of advanced esophageal cancer are secondary to decreasing size of the esophageal lumen diameter and are most commonly progressive dysphagia and unintentional weight loss due to changes in diet to accommodate dysphagia and tumor related anorexia. We herein report a case of a patient with advanced esophageal squamous cell carcinoma presenting with extrahepatic lymph node metastases of the periportal and

cystic nodes at the neck of the gallbladder resulting in compression of the common bile duct, presenting itself as a Courvoisier's law and initially mistaken for pancreatic carcinoma.

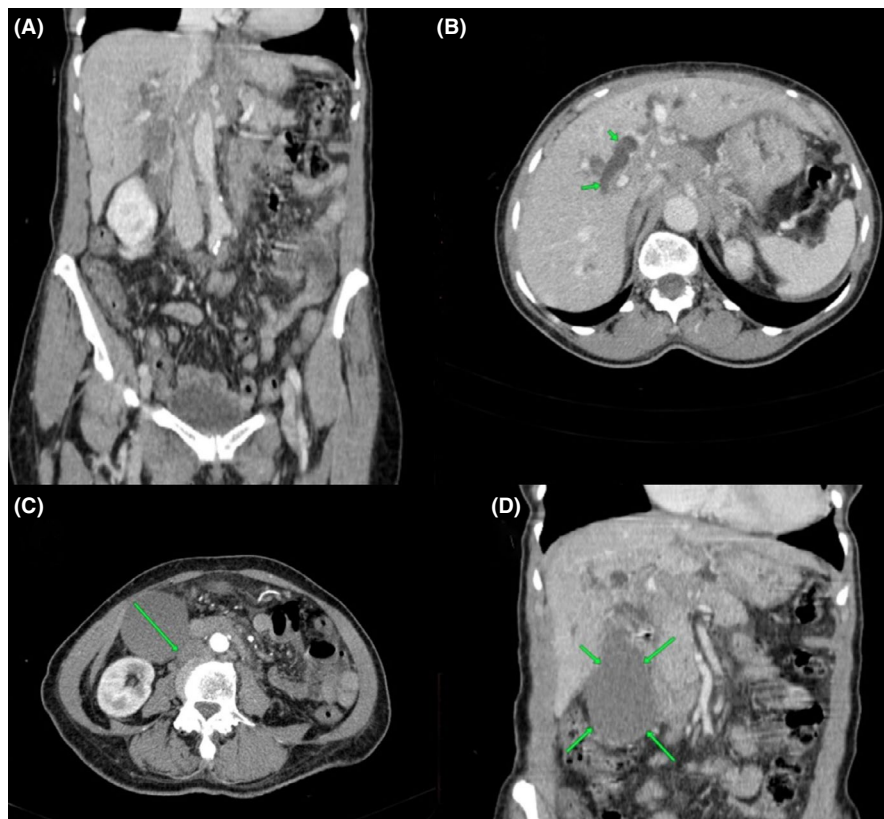
## 2 | CASE PRESENTATION

A 75-year-old female patient presented with a one-week history of nausea, vomiting, burning epigastric pain and painless, and progressive jaundice. The clinical syndrome included acholic stool, dark urine, transient sticking of food while swallowing, decreased appetite, and weight loss. There was a longstanding history gastroesophageal reflux, diabetes mellitus, and hypertension. There was no family history of malignancy.

On examination, the patient was icteric, abdomen soft and non-tender with a smooth, rounded palpable mass extending from the right upper quadrant to the right

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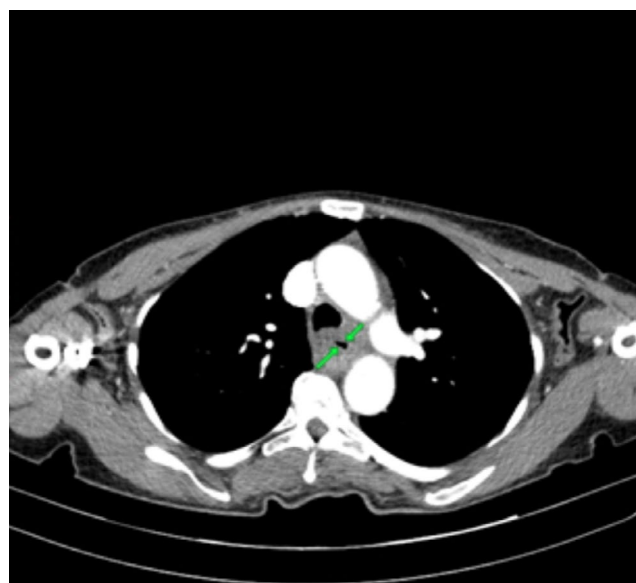
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**FIGURE 1** Computer tomography scan abdomen & pelvis showing an ill-defined soft tissue retroperitoneal mass at the level of the root of the celiac axis and abutting the abdominal aorta (A) with associated intrahepatic duct dilatation (B) and a dilated gallbladder in axial and coronal views (C & D)

flank, which moved caudally with respiration. Her liver function test showed a cholestatic picture with a total bilirubin of 8.5 mg/dl (direct: 6.7 mg/dl). The clinical picture at this stage was that of a carcinoma of the head of pancreas or ampulla presenting with painless progressive jaundice and a palpable gallbladder, thereby exhibiting Courvoisier's Law.

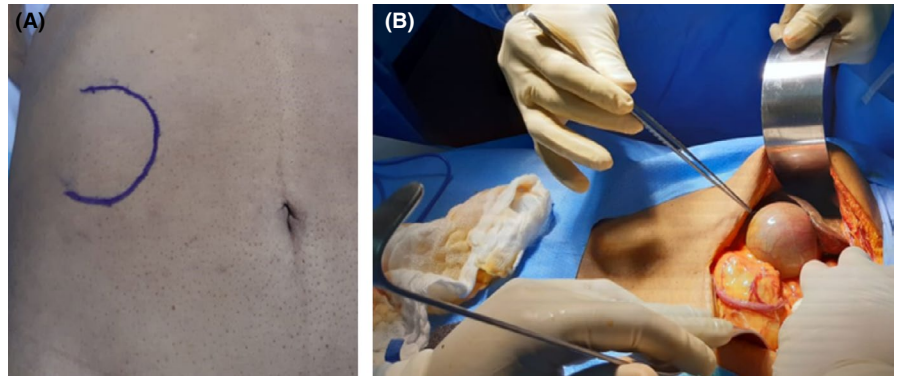
A computer tomography scan (CT) revealed an ill-defined soft tissue retroperitoneal mass at the level of the root of the celiac axis abutting the abdominal aorta (Figure 1A) with matted lymph nodes. Intrahepatic duct dilatation was noted, with compression of the common bile duct proximal to its insertion into the ampulla of Vater (Figure 1B) as well as gallbladder distension (measuring 5.5 × 5.5 cm TS × 10.8 cm CC) (Figure 1C & D). A CT head, neck, and thorax were then requested which revealed a severely irregularly thickened mid to distal esophagus extending for 10 cm (Figure 2) and indeterminate pulmonary and subpleural nodules which was suggestive of a primary neoplastic process (PET-CT or Endoscopic Ultrasound was not available). Esophago-gastroduodenoscopy revealed a distal concentric esophageal mass proximal to the gastroesophageal junction extending from 25 to 30 cm, a lesser curvature irregularity and mild duodenitis. Histopathology of the esophageal mass biopsy revealed a poorly differentiated invasive squamous cell carcinoma. The tumor was staged as T4 N3 M1 at this point. At surgery, a palliative cholecysto-jejunostomy



**FIGURE 2** Computer tomography scan Chest showing irregular thickening of the walls of the esophagus with narrowing of its lumen

and STAM gastrostomy were done with no complication as interventional techniques were unavailable (Figure 3). After recovery and resolution of her cholestatic symptoms, the patient was referred to Oncology and received Chemo-radiotherapy until she succumbed to the disease after 6 months.

**FIGURE 3** Surface marking of the distended gallbladder prior to palliative surgery (A) and distended gall bladder intraoperatively (B)



### 3 | DISCUSSION

Ludwig Georg Courvoisier (1843–1918) was a Surgeon from Basel Switzerland who had a keen interest in disease of the gallbladder and bile ducts. In 1890, he described his observation that patients with painless jaundice and a palpable gallbladder *often* have a malignant obstruction of the common bile duct known as “Courvoisier’s law.”<sup>2</sup>

Painless jaundice and a palpable gallbladder are present in 50%–70% of patients with periampullary cancer or carcinoma of the head of pancreas. It may also occur in cases of cholangiocarcinoma of the common bile duct.<sup>3,4</sup> *Parmar* explained in his paper published in the *Canadian Medical Association Journal* in 2003 that “Gallbladder distension is thought to occur because the distal malignant obstruction leads to chronically elevated intraductal pressures”. He further explained that “obstructions due to stone are typically associated with chronic cholecystitis and a fibrotic gallbladder, which prevent dilatation of the gallbladder wall.” Further, stones may cause intermittent/partial obstructions due to a ball-valve effect resulting in a lower chance of gallbladder distention.<sup>4</sup>

*Chung* explained in his study published in 1983 that chronically increased ductal pressure is the probable cause of the dilated gallbladder in malignant obstruction, since in his dataset of patients it was found in vitro that all gallbladders were pliable in the malignant and chronic cholecystitis groups.<sup>5</sup>

In Courvoisier’s study of 109 cases of a distended gallbladder, 17 were due to impacted stones. He concluded that dilatation of the gallbladder was uncommon but still possible with stones obstructing the common bile duct.<sup>2</sup>

We herein report an unusual case of extrahepatic biliary obstruction with gallbladder dilatation caused by large lymph node metastases to the periportal and cystic nodes at the neck of the gallbladder from a primary esophageal squamous cell carcinoma infiltrating and surrounding the common bile duct. Esophageal carcinoma tends to spread

locally, to the regional lymph nodes (paraesophageal or celiac lymph nodes), and finally to distant organs. It is usually diagnosed in its late stages as the lumen of the esophagus progressively narrows causing dysphagia and unwanted weight loss.<sup>6</sup> Although it is known to spread to the celiac lymph nodes, to the best of our knowledge and search of the literature, there has never been a published case of esophageal squamous carcinoma presenting with a dilated gallbladder and obstructive jaundice, mimicking Courvoisier’s Law.

### 4 | CONCLUSION

It is clear from this analysis that Courvoisier’s Law is not written in stone and has disparities whereby a patient with a painless, progressive jaundice and a palpable gallbladder is *likely* to have a carcinoma, but variations exist which include presenting with chronic cholecystitis, a ball-valve stone in the common bile duct and as in this case extrahepatic metastases from a squamous cell carcinoma of the esophagus. We conclude, to consider this diagnosis in the absence of an ampullary or pancreas head mass, stone, or chronic cholecystitis.

#### ACKNOWLEDGMENTS

None.

#### CONFLICT OF INTEREST

None declared.

#### AUTHOR CONTRIBUTIONS

Kafi Atiba wrote article and researched topic. Michael Ramdass performed Surgery, reviewed, and edited the manuscript. Adedapo Oladiran performed Surgery, reviewed article, and researched topic. Muhammad Rahman performed endoscopy and investigated patient, assisted in researching and reviewing manuscript.

#### ETHICAL APPROVAL

Patient and family consent was obtained.

## CONSENT

Written consent was obtained from the patient and relatives to publish this case for scientific purposes.

## DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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