



Metastatic Gallbladder Cancer Presenting as Forearm Pain with Radial Bone Metastasis

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Gallbladder cancer (GBC) is a relatively rare cancer associated with poor prognosis due to early direct invasion of adjacent structures and nodal metastasis. Isolated bone metastasis is rarely reported and only a few cases are available in literature. A 42-year-old female presented with forearm pain and mass for 3 months duration. She had undergone open cholecystectomy 4 years ago for cholelithiasis. Excision biopsy with decompression of posterior interosseous nerve showed metastatic adenocarcinoma deposit in bone. Fludeoxyglucose (FDG) avid soft-tissue thickening in postoperative bed along with FDG avid cortical erosion in the left occipital bone and lytic sclerotic lesion in left proximal radius was noted. The patient was started on palliative chemotherapy with gemcitabine and cisplatin. Diagnosis with GBC portends dismal prognosis due to local spread and distant metastasis. Metastasis is common to the liver and regional nodes. Isolated bone metastasis is extremely rare.

Key words: Case report, bone metastasis, gallbladder cancer, radius bone, occipital bone

INTRODUCTION

Gallbladder cancer (GBC) is a relatively rare cancer with a higher incidence in women. GBC is associated with poor prognosis due to early direct invasion of adjacent structures and nodal metastasis.¹ Of approximately 122,000 cases reported in 2022, 75% presented in locally advanced and metastatic stages.² The reported 5-year survival is <5% with a median survival of 6 months. Incidental detection rate of 1%–2% is observed in cholecystectomy.^{2,3} We report a rare case of postoperative bed tumor recurrence 4 years after cholecystectomy with radial and occipital bone metastasis without lymphadenopathy.

CASE REPORT

Informed written consent was taken before writing this report. Ethics committee approval was not required as it is a case report. A 42-year-old female presented with pain and swelling in her left forearm for 3 months which was

gradually progressive in nature, aggravated on movement, and relieved on rest. There was no restriction in the range of mobility. She had undergone open cholecystectomy 4 years ago for cholelithiasis. There were no known comorbidities, no history of any other surgical procedure or drug addiction. On examination, there was a hard tender mass of size 3 cm × 3 cm palpable in the left forearm with power reduced to 3/5, thenar wasting, and mild loss of sensation in the third and fourth finger. On per abdomen examination, the previous cholecystectomy scar site in the right hypochondrium and the epigastric region was healthy and healed and a 3 cm × 2 cm well-defined, firm mass was palpable in the right hypochondrium.

Excision biopsy with decompression of posterior interosseous nerve was planned. Histopathological evaluation showed metastatic adenocarcinoma deposit in bone, adjacent soft tissue, and muscle. Metastatic workup was done with positron emission tomography-computed

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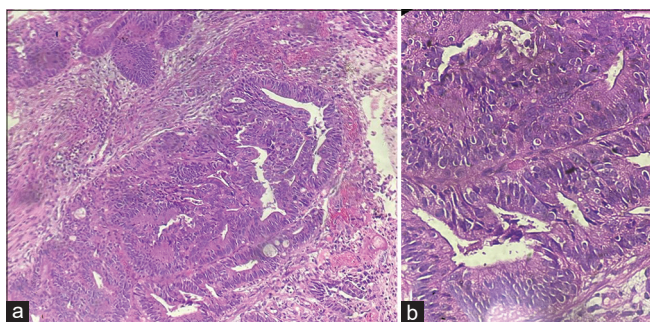


Figure 1: (a and b) Histopathology of biopsy from bone lesion showing adenocarcinoma under low power and high power, respectively

tomography (PET-CT) which revealed low-grade fludeoxyglucose (FDG) avid soft-tissue thickening in postoperative bed measuring 30 mm × 38 mm × 41 mm with SUVm of 2.84 along with FDG avid cortical erosion in left occipital bone with SUVm 4.28 and lytic sclerotic lesion in left proximal radius with SUVm 1.64. Biopsy of thickening in postoperative bed revealed atypical glands and tubules lined by dysplastic columnar epithelium showing loss of polarity and high nuclear; Cytoplasmic ratio with few mitotic figures suggestive of adenocarcinoma [Figure 1].

Diagnosis of isolated bone metastasis from primary gall bladder carcinoma was established. The patient was started on palliative chemotherapy with gemcitabine 1000 mg/m² D1 and D8, cisplatin 75 mg/m² D1 along with zoledronic acid. The patient had subjective response with improvement in pain and swelling after 3 cycles, hence, chemotherapy was planned for another 3 cycles. However, she reported in swelling on the day of C5D1 and did not report for further treatment and was lost to follow-up after that.

DISCUSSION

GBC constitutes only 2%–4% of all malignant gastrointestinal tumors with the highest incidence reported in the seventh decade. GBC is found more often in women than men.^{1,2} Clinical features of GBC are nonspecific in most cases and include jaundice, abdominal pain, ascites, anorexia, weight loss, and hepatomegaly. This results in every three out of four cases being diagnosed in locally advanced and metastatic stages. The pattern of spread from GBC is contiguous infiltration of the liver and adjacent structures followed by regional nodes and distant metastasis.⁴ Metastasis from GBC can occur to any part of the body and is often a late event in the natural history of disease. Isolated bone metastasis is very rarely observed. After extensive review of the literature, only a few cases were found and their details are summarized in Table 1. As bone metastasis occurs in late stages of disease, bone scan

and PET-CT whole body are not routinely done as a part of metastatic workup. However, this can result in bone lesions remaining undiagnosed.

The outcome of locally advanced and metastatic GBC remains dismal due to rapid growth, presentation in advanced stages, and poor response to chemotherapy, radiotherapy, and immunotherapy.³ Surgery with radical cholecystectomy is the only curative treatment that is performed in localized disease.¹⁴ Palliative treatment with chemotherapy, immunotherapy, and radiation are options for locally advanced and metastatic GBC. Palliative chemotherapy with gemcitabine and platinum, fluorouracil, and etoposide with or without immunotherapy can be considered. Palliative radiotherapy to metastatic sites is an option for the relief of local symptoms. Stereotactic radiotherapy has been tried for isolated liver metastasis. Palliative procedures with stenting or percutaneous drainage can be done for symptomatic relief in unresectable cases with jaundice or biliary and duodenal obstruction.²

We have reported a 42-year-old female who presented with forearm pain for 3 months duration. Imaging and workup suggested metastatic GBC to radial and occipital bones. This case is unusual as the bone was the only site of distant metastasis that occurred 4 years after cholecystectomy. It also emphasizes the need of a prospective study to evaluate the incidence of bone metastasis in GBC cases, especially in resectable stage to decide whether screening for bone metastasis needs to be included in the routine workup protocol for GBC.

CONCLUSION

Diagnosis with GBC portends dismal prognosis due to local spread and distant metastasis. Metastasis is common to the liver and regional nodes. Isolated bone metastasis is extremely rare. Here, we have reported a case of GBC with bone metastasis and have summarized cases reported in the literature. Prospective study to evaluate the need of bone metastatic workup in GBC before commencing curative treatment is required.

Declaration of patient consent

This study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki and its amendments. The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understands that her name and initials will not be published and due efforts will be made to conceal her identity, but anonymity cannot be guaranteed.

Table 1: Gallbladder cancer cases with isolated bone metastasis published in literature

Author and year	Age	Sex	Symptom	Duration (months)	Metastatic site	Biopsy	Treatment	Overall survival
Kohli <i>et al.</i> , 1994 ⁵	N/A	N/A	Pathological fracture	N/A	Femur	N/A	N/A	N/A
Misra <i>et al.</i> , 1997 ⁶	N/A	N/A	Pathological fracture	N/A	Femur	N/A	N/A	N/A
Misra <i>et al.</i> , 1997 ⁶	N/A	N/A	Inability to walk	N/A	L4 vertebrae	N/A	N/A	N/A
Youssef <i>et al.</i> , 2003 ⁷	47	Female	Right hypochondrium pain	2	Disseminated bone metastasis	Adenocarcinoma	Palliative RT	4 months
Singh <i>et al.</i> , 2005 ⁸	35	Female	Left shoulder pain	1	Clavicle	Adenocarcinoma	N/A	N/A
Singh <i>et al.</i> , 2007 ⁹	60	Female	Right hypochondrium pain, jaundice, scalp swelling	2	Parieto-occipital, T8-11, left femur, left ASIS	Adenocarcinoma	N/A	N/A
Jain <i>et al.</i> , 2009 ¹⁰	50	Female	Right shoulder pain, movement restriction	8	Humerus, skull	Adenocarcinoma	Palliative CT, RT (20 Gy/5 Fr)	N/A
Kulkarni <i>et al.</i> , 2009 ¹	40	Female	Dyspepsia, back pain, weight loss	12	Scapula	Adenocarcinoma	BSC	LTFU
Prakash <i>et al.</i> , 2010 ¹¹	57	Male	Right hypochondrium pain, abdominal distension, vomiting	2	Sacrum	Adenocarcinoma	Palliative CT	N/A
Prakash <i>et al.</i> , 2010 ¹¹	50	Male	Obstructive jaundice	N/A	L1 vertebrae	Adenocarcinoma	Palliative CT	N/A
Joshi <i>et al.</i> , 2013 ³	50	Female	Neck pain, abdominal pain, decrease appetite	3	Sternum, C4 with cord compression	Adenocarcinoma	BSC	LTFU
Puranik <i>et al.</i> , 2013 ¹²	63	Male	Abdominal pain, weight loss	2	Axial appendicular skeleton	Adenocarcinoma	N/A	N/A
Chaudhari <i>et al.</i> , 2014 ¹³	55	Male	Left hip joint pain	3	Femur	Adenocarcinoma	Palliative CT	8 months
Joel <i>et al.</i> , 2015 ¹⁴	76	Male	Generalized bone pain	3	Lower thoracic, lumbar vertebra, sacrum, inguinal node	Adenocarcinoma	Palliative CT	N/A
Aswani and Hira, 2016 ¹⁵	40	Female	Low back pain, icterus	5	Sacrum	Adenocarcinoma	BSC	1 day
Humeres <i>et al.</i> , 2017 ¹⁶	68	Male	Anorexia, weight loss, polydipsia, diaphoresis, abdominal pain	2–3 weeks	Multiple (spine, pelvis)	Mucinous adenocarcinoma	Palliative CT×4 months	Few months
Sinha <i>et al.</i> , 2019 ¹⁷	50	Female	Nonhealing fracture of right humerus	N/A	Right humerus, left femur	Adenocarcinoma	Palliative RT to right shoulder, and elbow; palliative CT	LTFU after C3D1 CT
Upadhyay <i>et al.</i> , 2024 ⁴	70	Male	Back pain	2–3	Disseminated bone metastasis	Adenocarcinoma	BSC	9 months
Our case	42	Female	Pain in the forearm	3	Radial and occipital bone	Adenocarcinoma	Palliative CT and zoledronic acid	LTFU after C5D1 CT

BSC=Best supportive care; CT=Chemotherapy; RT=Radiotherapy; ASIS=Anterior superior iliac spine; LTFU=Loss to follow up; N/A=Not available

Data availability statement

Data sharing is not applicable to this article as no datasets were generated or analyzed during the current study.

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Conflicts of interest

There are no conflicts of interest.

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