

HEPATIC METASTASIS OF THYMOMA: CASE REPORT OF A FAST-GROWING ABDOMINAL MASS IN A PREGNANT PATIENT

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Abstract: Introduction: Thymomas are the most common primary mediastinal tumors originating from epithelial cells of the thymus, demonstrating epithelial differentiation. Pathologically, thymomas exhibit relatively slow growth and typically spread directly, with extremely rare occurrences of distant dissemination to extrathoracic organs. The precise incidence of such dissemination remains unknown. Distant metastases, particularly to the liver, are exceptionally rare, with only a few cases documented in the literature.

Case Report: A 39-year-old woman, in her 31st week of gestation, presented with abdominal pain and discomfort. She underwent ultrasonography, followed by an urgent MRI of the abdomen due to a protruding tumor mass in the liver. Shortly after delivering a healthy baby via cesarean section, she was admitted to the hospital for a CT scan of the abdomen. The imaging revealed multiple focal changes in the liver parenchyma, exhibiting radiological characteristics consistent with focal nodular hyperplasia. Less likely differential diagnoses included adenomas or hemangiomas. Subsequently, she underwent staged hepatectomy, and the results of the pathological analysis confirmed the presence of type B thymoma metastases in the liver.

Conclusion: According to the available data in the literature, metastatic thymomas are often identified in patients who have previously undergone treatment for the primary disease. Our patient did not have a history of thymectomy, as confirmed by postoperative chest scans. Onset of symptoms during late pregnancy guided our diagnosis, relying on overall clinical and radiological findings of the detected tumor. Our treatment involved staged hepatectomy post-childbirth, followed by adjuvant chemotherapy. Further comprehensive studies are essential to precisely understand neoplasm behaviors like thymoma for timely detection and effective treatment.

Keywords: thymoma, metastasis, liver, pregnancy, surgery.

INTRODUCTION

The thymus, a solid organ situated in the anterior superior mediastinum, contains both lymphoid and epithelial components (1, 2). Thymomas, originating from epithelial cells of the thymus, exhibit relatively slow growth and typically spread directly, with an extremely rare incidence of distant dissemination to extrathoracic organs, though the exact frequency remains uncertain (2). Distant metastases, especially to the liver, are exceptionally rare, with few documented cases in the literature (3, 4). The 2021 “World Health Organization (WHO) Classification of Thoracic Tumours” primarily categorizes thymomas, epithelial tumors of the thymus, based on cytomorphology. Benign cytomorphology types include A, AB, B1, B2, and B3, while malignant types correspond to thymic carcinoma, formerly categorized as type C (1, 5). Metastases are predominantly found in the pleural space, lung parenchyma, or bones, and are more commonly observed in patients previously treated for the primary tumor (6, 7). Liver metastases often remain asymptomatic, discovered incidentally or when the tumor mass ruptures, leading to emergencies like hemoperitoneum (8, 9).

We present the case of a pregnant woman with a metastatic thymic tumor in the liver, exhibiting rapid growth in the third trimester of pregnancy, causing abdominal pain. This initiated further examination and led to the final diagnosis, without a history of previous thymectomy.

CASE REPORT

Our patient, a 39-year-old woman in her 31st week of pregnancy, visited the Clinic for Emergency Sur-

gery, University Clinical Centre of Serbia in Belgrade in May 2023 for an ambulatory examination, referred by her gynecologist due to upper abdominal pain as the primary complaint. During the initial visit, a routine ultrasound revealed a solid-cystic mass measuring 80 x 50 mm in the left liver lobe, exerting pressure on the

stomach. Basic blood tests showed normal results, and she was subsequently referred to a gastroenterologist. Upon mutual agreement among the surgeon, gastroenterologist, and gynecologist, a follow-up ultrasound of the abdomen was scheduled for the following day. This examination, conducted by the same radiologist,

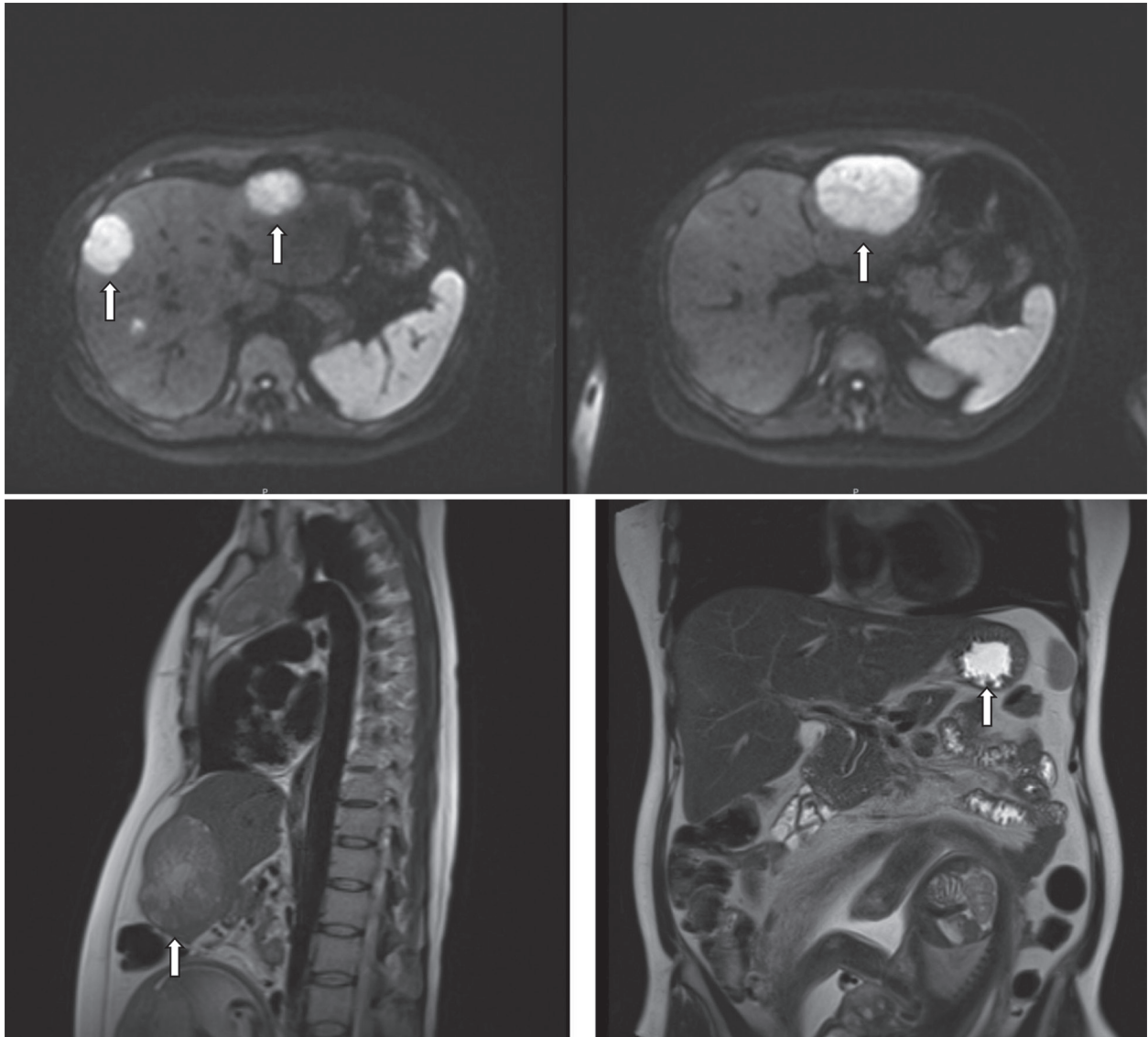


Figure 1. Preoperative MRI of abdomen – white arrow indicates the tumor masses



Figure 2. Preoperative CT of abdomen - white arrow indicates the tumor masses

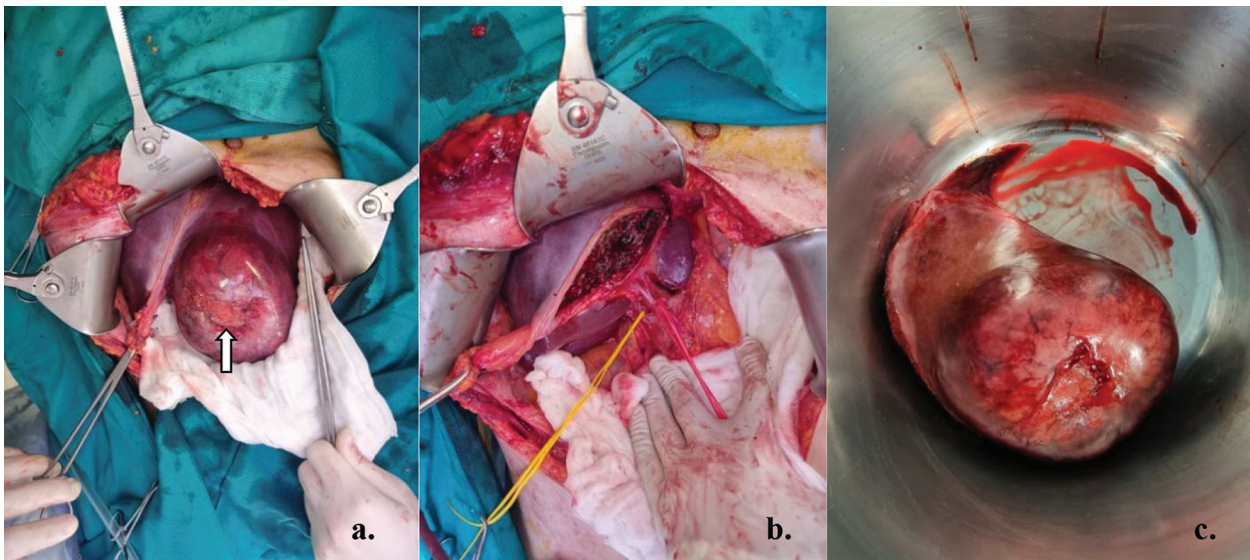


Figure 3. Intraoperative finding – white arrow indicates the biggest tumor mass in left liver lobe
 a. Before the resection; b. After the resection; c. Resected tumor mass

revealed a discreet increase in the size of the tumor mass. An urgent MRI examination of the abdomen and pelvis was promptly recommended. The MRI revealed several focal changes in the liver parenchyma, with the largest mass measuring 79 x 60 mm, subcapsular and positioned between the II and III segments. Additional masses were noted at the transition between the VIII and V segments (39 mm), within the V segment itself (15 mm), and one isolated in the VIII segment (12 mm). These findings exhibited radiological characteristics initially suggestive of focal nodular hyperplasia, with adenomas or hemangiomas considered less likely (Figure 1).

After a brief hospital stay, the patient was discharged in good general condition and had regular ultrasound follow-ups. Shortly after, she delivered a healthy child via caesarean section. Over the subsequent four weeks post-delivery, the size of the largest mass remained unchanged during weekly ultrasound examinations. Throughout the follow-up period, tumor marker values consistently remained within the reference range. However, due to the recurrence of pain, the patient was readmitted to the hospital, where an abdominal CT scan was conducted, prompting a recommendation for surgical intervention (Figure 2).

In July 2023, after appropriate preoperative preparation, a simultaneous resection of the II and III segments of the liver, along with the tumor mass located at the junction of the VIII and V segments, and the isolated tumor mass in the V segment was performed. Considering the remaining liver volume, it was decided during the surgery to postpone the resection of the remaining tumor mass until further histopathological findings were available (Figure 3).

The patient recovered well following the surgery and was discharged home. Pathohistological analysis revealed liver metastases originating from type B thymoma. About six weeks post-operation, a follow-up CT scan of the abdomen, small pelvis, neck, and chest was conducted, identifying the persistent tumor in the liver with unchanged dimensions. Additionally, a neoplastic alteration in the thymus measuring 88x55x57 mm was detected, accompanied by secondary deposits in the lung parenchyma and mediastinal lymph nodes. Subsequently, the case was presented to the oncology board, leading to further treatment decisions by the lymphoma tumor board and the thoracic surgeon.

Verbal and signed consent from the patient was obtained for the publication of this case report. All procedures conducted adhered to the principles outlined in the 1964 Helsinki declaration and its subsequent amendments.

DISCUSSION

Metastatic thymomas are mostly expected in patients previously treated for the primary disease (1, 2, 3). Khandelwal et al. reported hepatic metastasis of thymoma in about 4.8% of 62 thymoma cases (10). In our case, the initial examination detected the metastatic disease due to the expanding mass pressing on the liver capsule, causing abdominal pain during advanced pregnancy, coinciding with symptom onset. Considering the patient's medical history and the absence of a prior thymectomy, our case becomes more intriguing. Mallick J et al., in a literature review, noted 39 cases of thymoma with metastases beyond the thorax since the 1999 WHO Classification of Thoracic Tumours (1). Kim HJ et al. mentioned preoperative chemotherapy,

while Utsunomiya T et al. opted for radical surgery to avoid threatening rupture of the hepatic lesion and confirm the definitive pathohistological diagnosis (2, 11). In our case, due to the pregnancy, preoperative chemotherapy was not chosen, and we planned ultrasonographic and MRI follow-ups, scheduling surgery after childbirth. Considering the risk of spreading the disease and tumor mass rupture during percutaneous biopsy, we relied on overall clinical and radiological features for tumor assessment.

Literature suggests that treatment for thymoma metastases in the liver typically involves surgical resection, followed by chemotherapy and occasionally radiotherapy, although evidence is lacking, especially concerning liver metastasis incidence (3).

In conclusion, our management of liver metastatic thymoma consisted of staged hepatectomy followed by systemic chemotherapy based on the lymphoma

tumor board's recommendation. Further studies are needed to precisely understand neoplasm behavior like thymoma for timely detection and effective treatment.

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Abbreviations

MRI – Magnetic Resonance Imaging

CT – Computed Tomography

Sažetak

METASTAZE TIMOMA U JETRI: PRIKAZ SLUČAJA BRZORASTUĆE ABDOMINALNE MASE KOD TRUDNICE

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Uvod: Timomi su najčešći, primarni tumori medijastinuma koji potiču iz epitelnih ćelija timusa, odnosno ćelija sa epitelnom diferencijacijom. Kada je reč o njihovom biološkom ponašanju, timomi se odlikuju relativno sporim rastom i sposobnošću da se obično direktno šire, sa nepoznatom incidencijom davanja udaljenih metastaza pogotovo u ekstratorakalnim organima. Udaljene metastaze, posebno u jetru, su izuzetno retke i postoji samo nekoliko slučajeva opisanih u literaturi.

Prikaz slučaja: Naša pacijentkinja, 39-godišnja žena u 31. gestacijskoj nedelji trudnoće, imala je bol i nelagodnost u trbuhu i upućena je na ultrazvučni pregled praćen hitnom MR abdomena zbog tumorske mase u jetri. Ubrzo nakon što je na svet carskim rezom donela jedno zdravo dete, primljena je u bolnicu gde je urađen CT abdomena. Snimci su pokazali nekoliko fokalnih promena u parenhima jetre, sa radiološkim karakteristikama koje bi najpre odgovarale fokalnoj nodularnoj hiperplaziji, manje verovatnim adenomima ili

hemangiomima. Operisana je gde je urađena etapna hepatektomija, a rezultati patohistoloških analiza su pokazali da se radi o metastazama timoma tipa B u jetri.

Zaključak: Prema podacima dostupnim u literaturi, metastatski timomi se uglavnom otkrivaju i očekuju kod pacijenata koji su prethodno lečeni od primarnog oblika bolesti. Prema prethodnoj istoriji bolesti naše pacijentkinje, što je potvrđeno i postoperativnim skenerom grudnog koša, pacijentkinja ranije u životu nije imala timektomiju. S obzirom na kasnu trudnoću kao period kada su se javili simptomi, odlučili smo da se oslonimo na ukupne kliničke i radiološke karakteristike otkrivenog tumora. Naš tretman se sastojao od etapne hepatektomije nakon porođaja, nakon čega je usledila postoperativna hemoterapija. Neophodne su dalje i veće studije kako bi se precizno utvrdilo ponašanje neoplazmi kao što je timom kako bi se blagovremeno otkrile i efikasno lečile.

Cljučne reči: timom, metastaze, jetra, trudnoća, hirurgija.

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