We present an adult case of the chest wall tumor, which was accidentally pointed out by a medical checkup. Surgical resection was performed for the tumor, as preoperative biopsy of the tumor suggested the possibility of malignancy. Postoperative pathological examination revealed the diagnosis of mesenchymal hamartoma of the chest wall, which usually occurs in early infancy and childhood. Immunohistochemical staining for Sox9 was positive for chondrocytes and partially positive for spindle tumor cells. It is considered that the present case was not pointed out until the patient became an adult, because the tumor was relatively small and thus asymptomatic.

Keywords: chest wall tumor, mesenchymal hamartoma, adult

Introduction

Primary chest wall tumors are neoplasms arising from bone, soft tissue, or cartilage of the chest wall. They are rare tumors, with an incidence of <2% of the population, and approximately 50% to 80% of chest wall tumors are malignant. Mesenchymal hamartoma of the chest wall (MHCW) is a rare, benign chondro-osseous tumor of the bone and usually occurs in early infancy and childhood. The incidence of MHCW is reported as 0.03% among primary bone tumors. MHCW is detected as a chest wall mass and often causes respiratory distress that requires intubation, although it has a benign course. Here, we report an extremely rare case of MHCW, which occurred in an adult female. Preoperative pathological diagnosis was uncertain, although the biopsy of the tumor indicated the possibility of malignancy as chondrosarcoma. Surgical resection of the tumor together with the adjacent ribs was performed, which led to the pathological diagnosis of MHCW.

Case Report

A 39-year-old woman was referred to our hospital because of an asymptomatic left chest wall tumor that was pointed out accidentally by a complete medical checkup. She had no past medical history except for a clavicular fracture by a traffic accident, and was a current smoker with a 15-pack-year history of smoking. Computed tomography (CT) of the chest showed a chest wall tumor with calcification, 17 mm in diameter, in the left 7th intercostal space, suspicious of osteochondroma (Fig. 1A and 1B). Positron emission tomography-computed tomography (PET-CT) scan revealed the uptake of $^{18}$F-fluorodeoxyglucose (FDG) in the tumor [maximum standardized uptake value (SUVmax) = 1.79] (Fig. 1C). No other
significant lesions were detected. CT-guided biopsy of the tumor suggested the possibility of chondrosarcoma, although the amount of biopsy-obtained sample was not enough. The tumor was excised together with a part of the 7th and 8th ribs, because of a potential for malignancy, under the assistance of thoracoscopy for ensuring the surgical margin (Fig. 2A and 2B). Intraoperative pathological diagnosis was uncertain. Prosthetic mesh was used for the reconstruction of the chest wall. The postoperative course was uneventful except for the subcutaneous seroma, requiring the drainage. Surgical margin was negative and hematoxylin-eosin staining of the tumor showed the immature spindle tumor cells showing the differentiation into the cartilage (Fig. 2C). Immunohistochemical staining for Sox9 was positive for chondrocytes and partially positive for spindle tumor cells (Fig. 2D). The final pathological diagnosis was MHCW in an adult case. No recurrence is observed 9 months after surgery.
Discussion and Conclusion

MHCW is an extremely infrequent benign tumor that usually occurs in early infancy, and it varies from asymptomatic to severe respiratory distress. Various treatment modalities have been described, including surgical removal of the mass lesion and thermal radio-ablation. Resection of the lesion may be indicated in a symptomatic patient. However, MHCW will regress or shrink as the child grows. Therefore, conservative treatment is a valid option for asymptomatic children so as to prevent postoperative complications including severe scoliosis and gross chest deformity.

MHCWs are rarely reported after infancy. To the best of our knowledge, only one case has been reported for the adult MHCW. In that case of 60-year-old male, the multiple and bilateral lesions had been pointed out 13 years before but he had not received any treatment thereafter. He was admitted to the hospital with chest pain and the CT scan demonstrated the enlargement of the lesions. On the contrary, in the present case, the tumor was relatively small compared to the previously reported cases, and thus asymptomatic. Therefore, it is considered that the tumor was not pointed out until the medical examination was performed after the patient became an adult.

We resected a part of the 7th and 8th ribs together with the tumor, so as to ensure the surgical margin. As a consequence, the ribs were unnecessarily resected, as the tumor was benign. Considering the possibility of malignancy at the time of the operation, we believed the partial resection of the ribs was acceptable.

Sox9 is a transcriptional factor that is essential for the chondrocyte differentiation of mesenchymal cells. In the present case, chondrocytes were positive and spindle tumor cells were partially positive for Sox9, supporting that the diagnosis was MHCW. Immunohistochemical staining for Sox9 was helpful in the diagnosis for the present case, which was difficult to be diagnosed definitely because MHCW in an adult was extremely rare as mentioned above.

In conclusion, we experienced an extremely rare case of the adult MHCW accidentally pointed out by the medical checkup. It is considered that the present tumor was not recognized until the patient became an adult, as it was relatively small in size and thus asymptomatic. Although, the preoperative diagnosis for this case was difficult due to the rareness of it, detailed preoperative imaging analysis and pathological examination is necessary for the definitive diagnosis of the chest wall tumors.

Disclosure Statement

None of the authors has any financial or other potential conflicts of interest.

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