We present a case of a 4-month-old boy with a congenital adrenal teratoma. A right suprarenal cystic mass was detected before birth. Ultrasonography at the age of one day showed a 20-mm suprarenal mass. No blood flow was observed in the mass. It decreased in size over the first ten days after birth, but subsequently increased in size during four months of follow-up. Imaging examinations showed that the mass changed from cystic to solid with areas of adipose tissue. Complete resection of the mass was performed retroperitoneoscopically with preservation of the right adrenal gland. Pathological examination showed a mature teratoma with no immature or malignant elements. There were no postoperative complications. With the growing use of ultrasonography during pregnancy, increasing numbers of neonates present for management of suprarenal masses. In the majority of cases, the mass is a congenital cystic neuroblastoma or adrenal hemorrhagic pseudocyst. Although congenital adrenal teratoma is extremely rare, it should be considered in the differential diagnosis of a neonatal suprarenal mass.
examinations, we decided to perform retroperitoneoscopic surgery. The patient was placed in the left lateral decubitus position to maximize the space between the left iliac crest and the 12th rib. A 25-mm incision was made in the mid-axillary line above the level of the anterior superior iliac spine. The retroperitoneal space was enlarged using a balloon dissector made from the finger of a rubber glove and a catheter, as described by Shanberg et al. [7], and two 5-mm trocars were introduced into the space. Although the tumor was completely covered by the adrenal gland, it was well circumscribed and could be dissected retroperitoneoscopically with preservation of the gland (Fig. 3). The surgical specimen measured 21 mm × 20 mm × 19 mm and weighed 3.9 g. Pathological examination showed a mature teratoma with no immature or malignant elements (Fig. 4). There were no postoperative complications.

2. Discussion

A suprarenal mass detected before birth can be caused by CNB, AHP, extrapulmonary sequestration, a bronchogenic cyst, or uropathy [2]. The majority are caused by CNB or AHP. It is difficult to differentiate between these entities because they have similar findings on imaging examinations. MIBG scan has a reported 55% negative predictive value in this subgroup of patients [8], so it cannot exclude the possibility of neuroblastoma. Although the optimal treatment of such masses has not been established, conservative therapy with close follow-up for 1–6 months is recommended, because most cases of localized congenital neuroblastoma have a favorable outcome [2,4,8]. With this in mind, MIBG scan may be deferred, avoiding irradiation.

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Fig. 1. Imaging findings after birth. (A) Ultrasonography at the age of 1 day, showing a cystic mass with an internal septum, measuring 23.1 mm × 21.8 mm. No blood flow was observed in the mass. (B) T1-weighted and (C) T2-weighted magnetic resonance images at the age of 10 days, showing a mass measuring 14.8 mm × 15 mm × 15.8 mm, which was smaller than at the age of 1 day. The mass was hypointense on T1-weighted images and hyperintense on T2-weighted images.

Fig. 2. Imaging findings at the age of 4 months. (A) Ultrasonography, showing a mass measuring 21.9 mm × 20.3 mm × 24.4 mm. The mass had changed from cystic to solid. No blood flow was observed in the mass. (B) Enhanced computed tomography, showing a poorly enhanced, well-circumscribed mass in the region of the right adrenal gland measuring 21 mm × 20 mm, with coarse calcifications and adipose tissue. (C) T1-weighted and (D) T2-weighted fat-suppressed magnetic resonance images showing lipomatous changes inside the tumor.
A teratoma is an uncommon neoplasm that originates from totipotent cells. The majority of teratomas presenting at birth are located in the sacrococcygeal region, but they have been reported to occur throughout the body [6,9]. There is a 25% chance of malignancy, and surgical resection is necessary for diagnosis and treatment [9]. In the present case, the mass was initially cystic and decreased in size during the first 10 days, and was therefore suspected to be AHP. However, at 4 months of age, the mass had increased in size and imaging examinations showed a solid mass including adipose tissue. The resected specimen was diagnosed as a mature teratoma. There are only two previous reports of congenital adrenal teratoma in the English-language literature [4,5], and neither of them described these interesting changes in imaging examination findings over time. Our experience suggests that even masses that initially decrease in size should be followed up until no residual lesion is observable.

In this case, we chose retroperitoneoscopic resection because the tumor was small and well circumscribed, and was avascular on imaging examinations. These features are considered to be good indications for retroperitoneoscopic surgery, which allows a direct approach to the tumor via a small skin incision without mobilization of the colon or liver. However, operative management of such tumors is challenging. Li et al. [10] reported a 4-year-old girl with a left adrenal teratoma that was only 3 cm in diameter but encased the renal pedicle, necessitating nephrectomy to achieve complete resection of the tumor. Gow et al. [11] reported a 9-month-old boy with a retropleural teratoma that presented as a suprarenal mass. These cases show that surgeons should be prepared to modify their procedure according to the operative findings.

3. Conclusion

The majority of suprarenal masses detected before birth are caused by CNB or AHC. Rather than aggressive treatment, conservative therapy with close follow-up for 1–6 months is recommended. Although adrenal teratoma is an extremely rare cause of a neonatal suprarenal mass, it should be considered in the differential diagnosis, because this tumor requires surgical excision for definitive diagnosis and treatment. Retroperitoneoscopic resection may be useful, but operative management of such a tumor is challenging and surgical planning...
needs to take into account the relationship of the mass to surrounding structures.

Consent

Written informed consent was obtained from the patient’s parents for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Conflict of interest statement

The authors have no conflicts of interest to report.

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