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<th><strong>Title</strong></th>
<th>Radiological conference. Type I sacrococcygeal teratoma</th>
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<td><strong>Author(s)</strong></td>
<td>Chan, KL; Peh, WCG</td>
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Clinical History:

A newborn baby girl of 23 weeks of gestation weighing 680 gm was found to have a large sacral mass. On palpation, the mass was firm in consistency. The anus and vulva were displaced anteriorly.

Figure 1: Clinical photograph of the premature baby taken shortly after birth. The sacral mass is arrowed

Figure 2: Direct sagittal CT scan of the lower trunk, taken through the midline. [S = spinal segment, L = liver]

What is the diagnosis?

a) Sacrococcygeal teratoma
b) Sacral chordoma
c) Myelomeningocoele
d) Myelocoele
e) Lipomyelomeningocoele

This radiology case was prepared by:

Dr. K.L. Chan, Senior Medical Officer,
Department of Surgery,
Queen Mary Hospital.

Dr. W.C.G. Peh, Associate Professor
Department of Diagnostic Radiology,
The University of Hong Kong.
Answer:

a) Type I sacrococcygeal teratoma

Radiological findings

The direct sagittal computed tomography (CT) scan showed a heterogeneous soft mass which arose below the level of rectum and extended distally from the coccyx. The mass was located in the midline and exhibited patchy contrast enhancement. In addition to the solid component, there were calcified and fatty areas (Figure 3). Findings were typical of a sacrococcygeal teratoma.

Figure 3: Figure is identical to Figure 2 with addition of arrows. The mass (arrowheads) is exophytic without intrapelvic extension. There are small hyperdense areas representing calcified foci (small black arrows), and larger hypodense areas representing the fatty components (small white arrows), within the mass.

Discussion

A sacrococcygeal teratoma weighing 208 gm was successfully excised. The cut surfaces of the operative specimen showed a variety of tissues (Figure 4). Microscopically, the tumour was found to composed of ectodermal (skin, squamous epithelium and neural tissue), mesodermal (adipose tissue and cartilage) and endodermal (respiratory and intestinal epithelium) tissues. This confirmed the pre-operative diagnosis of a teratoma, which is a complex neoplasm composed of tissues derived from all three dermal layers, and also explained the heterogeneous CT appearances. The patients made a good post-operative recovery and at the time of discharge from hospital, she weighed 2300 gm.

Figure 4: The resected surgical specimen of the teratoma shows a variety of different tissues which was confirmed histologically.

The sacrococcygeal area is the most common site for teratoma in infancy with the second commonest site being the ovary. Altman et al described the classification of sacrococcygeal teratoma in 1973. CT is important for identifying the type of sacrococcygeal teratoma pre-operatively because the different types of tumour have different degrees of pelvic extension. The four types are: Type I, predominantly external; Type II, external manifestation but with significant intra-
pelvic extension; Type III, - apparent externally but
with predominantly intra-pelvic and intra-abdominal
extension; Type IV, - pre-sacral with no external
manifestation. Intra-pelvic extension, if present,
requires an abdomino-perineal surgical approach for
removal, which entails a much more major procedure.
This is a particularly important consideration for our
680 gm premature patient. The rectum and anus are
sometimes markedly displaced as in our patient.
Magnetic resonance imaging (MRI) of the pelvis, with
its multiplanar capability, is especially suited in
delineating the relationship of the tumour with the
adjacent soft tissue structures and spinal canal.³

With improved quality of antenatal ultrasound, a
large sacrococcygeal teratoma can be detected and
managed at an earlier stage. High-output foetal cardiac
failure due to vascular steal by arteriovenous shunts in
the tumour and haemorrhage causing anaemia are major
complications which may occur. Intrauterine
endoscopic laser surgery has been reported to be a
successful life saving procedure.⁴ Sometimes,
devascularization and stage resection⁵ or
cardiopulmonary bypass⁶ may be used for giant lesions.

Sacral chordoma

Chordomas are uncommon aggressive extradural
lesions of the bony spine, which arise from primitive
notochord remnants. 50% of the chordomas are located
in the sacrococcygeal region, with 30-40% originating
from the basisphenoid. They typically present in
middle-aged adults. Plain radiographs show bony
destruction and calcified areas. The solid paravertebral
soft tissue mass, usually with associated septa, is better
demonstrated on MRI than CT scans.⁷ In this case, the
age, clinical presentation and imaging appearances
exclude this diagnosis.

Myelomingingocele

Myelomingingocele is the most common significant
type of spinal dysraphism. Due to failure of closure of
the posterior neuropore at about 3 weeks of gestation,

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The Hong Kong College of General Practitioners
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