

A case of giant abdominal ganglioneuroma: CT findings

Published on 09.04.2008

DOI: 10.1594/EURORAD/CASE.2071

ISSN: 1563-4086

Section: Paediatric radiology

Case Type: Clinical Cases

Authors: Cantisani V, Coletta L, Alfano G, D'Ambrosio D

Patient: 4 years, male

Clinical History:

The patient, who had a history of an abdominal mass surgically resected during the first weeks after his birth, presented with a lumbar tumefaction, deforming the back, thus resulting in a visible asymmetry of his body. He also had an untreatable chronic pain in the abdomen, and impotence in deambulation.

Imaging Findings:

A four-year-old male, an african patient, who had a history of an abdominal mass that had been surgically resected during the first weeks after his birth, presented with a lumbar tumefaction, deforming the back, thus resulting in a visible asymmetry of his body. The patient also had a chronic abdominal pain, and impotence in deambulation. The patient had been previously hospitalized in his native country, but no information related with his work-up was available. Subsequently, because of the worsening of the abdominal pain, the patient was admitted to our hospital. A spiral CT scan was then performed, which revealed the presence of a huge abdominal mass arising in the retroperitoneal space, and extending to and infiltrating the back and the surrounding structures (Fig. 1). The mass, characterized by irregular margins, and containing coarse, multiple calcifications, showed heterogeneous attenuation after contrast administration (Fig. 2).

Discussion:

A ganglioneuroma is a rare, benign neoplasm arising from the sympathetic ganglia. Therefore, it is included in the group of neurogenic tumours, including ganglioneuroblastoma and neuroblastoma. Even if rare, the diagnosis of a ganglioneuroma should be taken into consideration in the differential diagnosis of retroperitoneal tumours, especially since it is benign. A neuroblastoma is a neoplasm of high malignancy, and a ganglioneuroblastoma is a tumour with an intermediate degree of malignancy. Ganglioneuromas are benign neoplasms, but 25% of them have been proven to contain poorly differentiated components, such as ganglioneuroblastoma, neuroblastoma or phaeochromocytoma. Ganglioneuromas frequently arise in the retroperitoneum, and represent 0.7%–1.6% of all primary retroperitoneal tumours, with a predominance in children and young adults. Ganglioneuromas are often asymptomatic, even if they reach large volumes; otherwise, abdominal pain or palpation of an abdominal mass are the most frequent clinical features. Retroperitoneal ganglioneuromas are well-defined tumours with an oval, crescent, or lobulated shape. Their ultrasonographic appearance is not specific, with the mass showing a heterogeneous solid structure. The ultrasound technique can be helpful in localizing the origin of the mass and in visualizing its relationship with the vessels. Ultrasonography and unenhanced CT procedures may demonstrate, with higher accuracy, the presence of coarse or fine calcifications. On ultrasonography, ganglioneuromas are found to be heterogeneously echogenic due to the presence of haemorrhage or necrosis. The MRI technique has also been reported to be a useful diagnostic tool, because of its multiplanarity and improved soft-tissue contrast. These tumours present various signal intensities on T1-weighted images, but they are generally hyperintense with a heterogeneous appearance on T2-weighted images. After a gadolinium injection, marked heterogeneous early enhancement has been described. CT, is

however, the most commonly used imaging modality for the assessment of neuroblastic tumours, because it reveals the extent of the tumour, its organ of origin, regional invasion, vascular encasement, adenopathy, and calcification. Abdominal and pelvic tumours, as in this case, are usually large and of heterogeneous attenuation.

Differential Diagnosis List: Giant abdominal ganglioneuroma.

Final Diagnosis: Giant abdominal ganglioneuroma.

References:

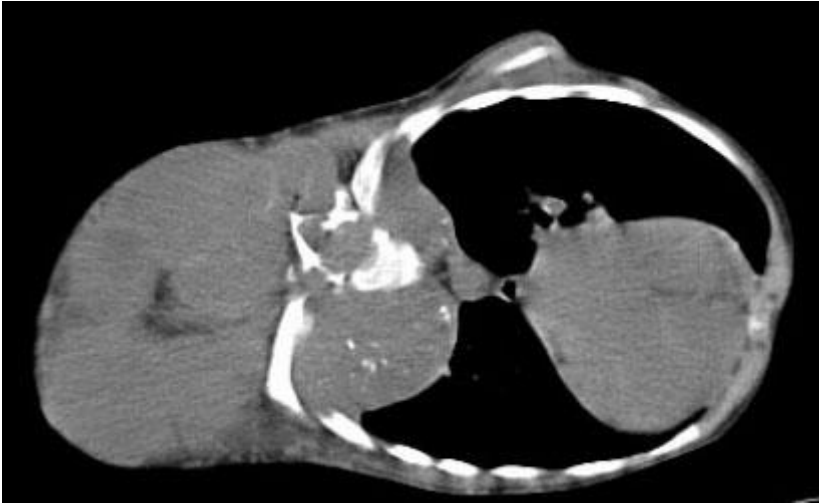
Otal P, Mezghani S, Hassissene S, Maleux G, Colombier D, Rousseau H, Joffre F. Imaging of retroperitoneal ganglioneuroma. *Eur Radiol* 2001;11(6):940-5. (PMID: [11419166](#))

Lonergan GJ, Schwab CM, Suarez ES, Carlson CL. Neuroblastoma, ganglioneuroblastoma, and ganglioneuroma: Radiologic-pathologic correlation. *RadioGraphics* 2002;22:911-34. (PMID: [12110723](#))

Ichikawa T, Ohtomo K, Araki T, Fujimoto H, Nemoto K, Nanbu A, Onoue M, Aoki K. Ganglioneuroma: CT and MR features. *Br J Radiol* 1996;69:114-21. (PMID: [8785637](#))

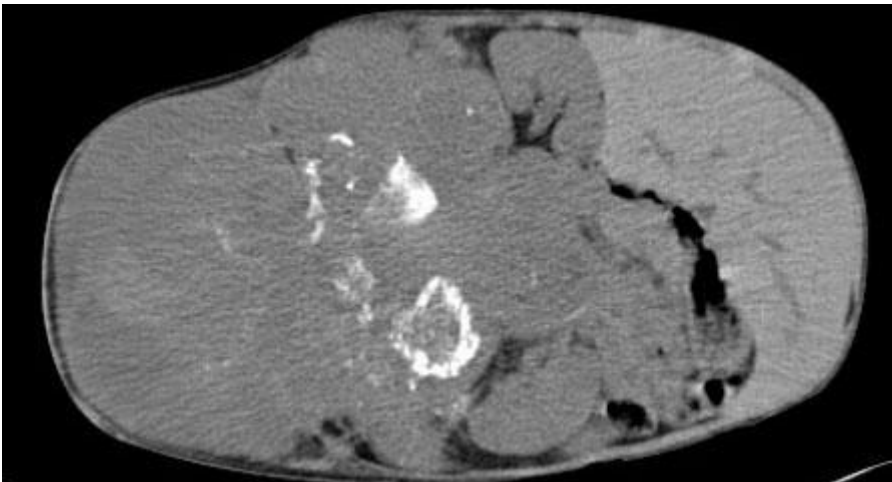
Figure 1

a



Description: An unenhanced thoracic-abdominal CT scan showing a huge mass located in the upper retroperitoneal space, extending to the back and towards the mid-lower abdomen. **Origin:**

b



Description: An unenhanced CT scan obtained at a lower level clearly demonstrating the presence of coarse calcifications within the huge mass. **Origin:**

Figure 2

a



Description: An enhanced CT scan demonstrating the mass, characterized by irregular margins, and containing coarse, multiple calcifications, showing heterogeneous attenuation after contrast administration. **Origin:**