Incidental findings in CT and MRI examination of the lumbar spine: A pictorial review

Poster No.: C-2385
Congress: ECR 2010
Type: Educational Exhibit
Topic: Musculoskeletal
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Keywords: extraspinal incidental findings, lumbar CT, lumbar MRI
DOI: 10.1594/ecr2010/C-2385

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Learning objectives

The purpose of this study is to illustrate a large number of incidental extraspinal findings in CT and MRI lumbar examinations and discuss the medical and legal aspects of incidental findings in everyday practice.

Background

Firstly, for the purpose of our study, as an incidental finding will be defined any pathologic finding discovered outside the vertebral column or spinal canal.

Nowadays, the implementation of picture archiving and communicating systems (PACS) in many radiologic departments improved the diagnostic efficiency of radiologists, thus resulting in an increased number of incidentally detected findings in lumbar examinations, as well as in other imaging procedures (1). The reason for this seems to be the ability to view uncropped images of each study (and not restricted to the anatomic region/organ of interest), as well as images from the localizer series and not only selected hard-copies as in the past. (2, 3)

However, the increased ability to detect incidental pathology in all kind of examinations at the same time increased medicolegal issues concerning radiologists (Bertin et al report that 47% of lawsuits against radiologists are related to missed diagnoses), as a number of missed concomitant pathologic findings may be the source of patients' symptoms or potentially life-threatening diseases. (4) The recognition and characterization of these incidental lesions, besides the potential medicolegal implications for concerned radiologist, may lead also to unnecessary follow-up examinations with cost to the patient and the medical system or on the other hand in the early detection of a potential serious pathology.

Nowadays, specialized radiologists (neuroradiologists, MSK radiologists etc.), general radiologists as well as other doctors from other subspecialties (cardiologists, orthopaedics, vascular surgeons etc.) are involved in the interpretation of radiologic studies. The ability to detect an incidental finding, especially from low resolution images of the localizer series, small field of view (in cases of lumbar examinations), and sometimes limited number of images (as far as the incidental finding is concerned), demands a complete and thorough overview of the study (as a radiologist is trained to do) and not focusing only in the system/organ of interest (as a specialist doctor may be able to do).

Additionally, this incidental detected pathology may impose changes in the protocol of an examination (according for example to the frequency of incidental findings in certain
patients' age groups) or real-time modification of a study, when these findings become apparent during the examination procedure (5,6).

**Imaging findings OR Procedure details**

Practically, all kinds of pathologic findings may be demonstrated in a lumbar examination at the abdominal organs included in the field of view. In a number of cases this incidental findings are the main cause of patient's symptoms. In this study the authors illustrate a gamut of incidental findings (43 different types of lesions) encountered in CT and MRI lumbar examinations in their everyday practise in various organs. Cases are grouped according to systems. Standard MRI protocol of lumbar examination in our institution includes a T1 and T2 weighted sagittal sequence, a T2 STIR sagittal sequence, a T2 weighted axial sequence routinely at L3-L4 to L5-S1 level and a T2 weighted coronal sequence. CT examination includes a topogram of the entire abdomen and 2.5 mm slices from the middle of the 12th thoracic vertebra to the level of the 2nd sacral vertebra.

**GASTROINTESTINAL SYSTEM**

**CASE 1**: Female patient 33 years-old. Symptoms: low back pain. T2 weighted coronal image. Compression at the upper aspect of the spleen from a lesion located at the LT subdiaphragmatic space (yellow star). The lesion presents similar intensity with liver parenchyma. Follow-up ultrasound examination revealed an enlarged LT liver lobe extending to the LT subdiaphragmatic space (anatomic variant). (Figure 1) on page 9

**CASE 2**: Female patient 42 years-old. Symptoms: acute low back pain after extreme exercise. T2 weighted coronal image. Craniocaudal enlargement of the RT liver lobe with no focal lesions (Riedel lobe - anatomic variant) (Figure 2) on page 10

**CASE 3**:

- Female patient 43 years-old. T2 weighted coronal image. Symptoms: Acute low back pain after lifting a heavy weight. A 7 cm high intensity lesion is demonstrated at the RT liver lobe. Follow-up CT examination showed that the lesion was an hemangioma. (Figure 3) on page 11
- Female patient 77 years-old. Symptoms: radiating pain in both legs. T2 weighted coronal image. A small high intensity lesion is demonstrated at the RT liver lobe (yellow arrow) (Figure 4) on page 12. Follow-up US examination revealed a hyperechoic lesion consistent with an hemangioma.
CASE 4: Male patient 44 years-old. Symptoms: low back pain irradiating to both legs. Topogram of CT examination (en face & profile) shows calcified well-demarcated round lesion at the anatomic location of the gallbladder (arrows) (Figure 5) on page 13. Follow-up ultrasound examination revealed multiple gallbladder stones.

CASE 5: Male patient 74 years-old. Symptoms: chronic low back pain. CT examination Diverticula of the sigmoid colon with no signs of inflammation (Figure 6) on page 14.

**GENITURINARY SYSTEM**

CASE 6: Male patient 47 years-old. Symptoms: low back pain irradiating to his RT thigh. Coronal T2 weighted image. Normal RT kidney and enlarged LT kidney with no obvious mass lesion. CT of the upper abdomen revealed duplication of the LT kidney. (Figure 7) on page 14

CASE 7: Male patient 63 years-old. Symptoms: chronic low back. Coronal T2 weighted sequential images. Atrophy of the RT kidney (yellow arrows) with compensatory hypertrophy of the LT kidney. (Figure 8) on page 15

CASE 8: Female patient 48 years-old. Symptoms: low back pain. Two sequential coronal T2 weighted images demonstrate a hypoplastic LT kidney. Normal appearance of the RT kidney. (Figure 9) on page 16

CASE 9: Male patient 35 years old. Symptoms: low back pain. T2 weighted axial image. Extrarenal pelvis bilaterally. (Figure 10) on page 16

CASE 10: Male patient 74 years old. Symptoms: low back pain irradiating to both legs. T2 weighted axial (a), coronal (b) and sagittal (c) images. Transplanted kidney in the pelvis. Part of the upper pole is demonstrated (yellow arrows) (Figure 11) on page 17

CASE 11:

- Male patient 35 years old. Symptoms: low back pain. T1 weighted (a) and T2 weighted (b) axial images and T2 weighted sagittal image (c). Horse shoe kidney. Isthmus is pointed by yellow arrows in all images (Figure 12) on page 18
- Male patient 75 years old. Symptoms: chronic low back pain irradiating to both legs. T1 weighted (a), T2 weighted (b) axial images and T2 weighted sagittal image (c). Horse shoe kidney. Isthmus again is pointed by yellow arrows in all images (Figure 13) on page 18
CASE 12: Male patient 65 years old. Symptoms: low back pain. CT image at the level of the kidneys. Simple renal cyst of the LT kidney. (Figure 14) on page 19

CASE 13: Male patient 45 years-old. Symptoms: chronic low back radiating to both legs. T2 weighted coronal images. Renal cysts at both kidneys. (Figure 15) on page 20

CASE 14: Male patient 88 years-old. Symptoms: chronic low back radiating to both legs. CT examination. Parapelvic renal cysts bilateral (yellow star). (Figure 16) on page 21

CASE 15:

Female patient 28 years-old. Symptoms: low back pain due to known scoliosis. T1 weighted sagittal (a), T1 weighted STIR GAD sagittal (b) and T2 weighted coronal images. Ectopic LT kidney in the pelvis. Scoliosis of lumbar spine is also obvious (Figure 17) on page 21.

CASE 16: Female patient 58 years-old. Symptoms: low back radiating to the RT leg. T2 (a) and T1 (b) weighted sagittal images and T2 weighted axial (c) image. Ectopic RT kidney in the pelvis. (Figure 18) on page 22

CASE 17: Male patient 58 years-old. Symptoms: low back. T2 weighted axial image. Malrotation of the LT kidney. on page 16(Figure 19) on page 23

CASE 18: Female patient 48 years-old. Symptoms: low back radiating to the LT leg. T2 weighted coronal image. LT kidney duplication/malrotation and malrotation of the RT kidney. (Figure 20) on page 24

CASE 19: Male patient 34 years old. Symptoms: acute low back pain after sports activities. CT examination (Figure 21) on page 25. CT examination. An enlargement of the lower pole of the RT kidney was noticed on axial and coronal MPR image. Oblique parasagittal MPR image clearly demonstrated a mass (yellow star) causing this enlargement. Abdominal CT (axila and coronal MPR images) revealed a 7 cm mass with heterogenous enhancement in arterial phase (Figure 22). on page 26 The patient underwent surgical removal of the lesion. Pathologic findings were consistent with low grade adenocarcinoma.

CASE 20: Male patient 27 years-old. Symptoms: chronic low back mainly at the RT side. CT examination. No obvious abnormality was demonstrated at the lumbar spine.
Dilatation of the collecting system of the RT Kidney (yellow star) with abrupt transition to a normal ureter (yellow arrow) at the level of pelvoureteral junction. Chronic stenosis of the pelvoureteral junction. (Figure 23) on page 26

CASE 21: Male patient 48 years-old. Symptoms: chronic low back. CT examination. Anomalous retrocaval course of RT ureters (arrows) (Figure 24) on page 27. Contrast enhancement of both ureters due to contrast-enhanced CT examination of the brain earlier at the same day.

CASE 22: Male patient 80 years-old. Symptoms: chronic low back radiating to both legs. T2 and T1 weighted sagittal images. Polypoid lesion in the urinary bladder (Figure 25) on page 28. Follow-up ultrasound examination revealed severe hypertrophy of the prostate gland.

CASE 23: Female patient 48 years-old. Symptoms: low back radiating to both legs. T2 weighted axial (a) and coronal (b) images. Uterus bicornis. (Figure 26) on page 28

CASE 24: Female patient 38 years-old. Symptoms: Lower pelvic periodical discomfort and low back pain. T1 and T2 RT and LT parasagittal images. Bilateral ovarian cystic lesions. Part of the lesions show high intensity in T1 and T2 images (red stars) (haemorrhage?, fat?) and part of them demonstrate signal intensity similar to simple cyst (yellow stars). Follow-up MRI examination of the pelvis demonstrated hemorrhagic cystic lesions (endometriomas) in both ovaries. (Figure 27) on page 29

CASE 25: Female patient 44 years-old. Symptoms: low back pain radiating to RT leg. T1 (a) and T2 (b) weighted sagittal images and T1 (c) and T2 (d) axial images. Enlargement of the demonstrated part of the uterus. In T2 weighted axial image low intensity well-demarcated round lesions (yellow stars) are demonstrated in the myometrium probably representing fibromas. (Figure 28) on page 30

CASE 26: Female patient 38 years-old. Parasagittal T2 weighted image. Cystic lesions in the uterine cervix (arrow) representing Nabothian cysts. (Figure 29) on page 31

CASE 27: Female patient 70 years-old. Symptoms: chronic low back pain. CT examination. Axial image (a) at the level of lower pelvis, midsagittal (b) and coronal (c) MPR images demonstrate part of a cystic lesion (yellow star) at the LT side of lower pelvis (Figure 30) on page 33. Follow-up MRI examination revealed a cystic lesion probably originating from the LT ovary. Pathologic examination of the lesion after surgical removal revealed a cystadenocarcinoma of the LT ovary. A: aorta, yellow arrow: LT ovarian vein.
**ABDOMINAL VESSELS**

**CASE 28:** Male patient 87 years-old. Symptoms: chronic low back pain mainly located at the LT side. CT axial images (from the level of L5 and downwards) at the level of the common iliac arteries. A soft tissue density lesion is demonstrated at the LT aspect of the pelvis in contact with the LT common iliac artery (red arrows). Part of the lesion (at its posterior aspect) appears slightly hyperdense (yellow arrows) a finding consistent with haemorrhagic elements. A soft tissue lesion or a pseudoaneurysm of the LT common iliac artery were initially suspected (Figure 31) on page 33. Follow-up MRI examination. T1 (a) and T1 GAD (b) axial sequences revealed a mixed intensity lesion with intense central enhancement (yellow arrows) similar to vascular structures (Figure 32) on page 34. A ruptured aneurysm of the common iliac artery was considered the most probable diagnosis. Digital subtraction angiography confirmed the diagnosis.

**CASE 29:** Male patient 77 years-old. Symptoms: low back pain radiating to both legs exacerbated after intense walking. CT examination. Axial (a) and sagittal MPR (b) images. An aneurysm of the abdominal aorta is demonstrated. Follow-up CT angiography of the abdominal aorta (3D VRT) illustrates the aneurysm (Figure 33) on page 35.

**CASE 30:** Male patient 49 years-old. Symptoms: low back radiating to LT leg. T2 (a) and T1 (b) weighted midline sagittal images. Small aneurysm of the aorta. (Figure 34) on page 36

**CASE 31:** (Same patient as in case 27) Female patient 70 years-old. Symptoms: to chronic low back pain. CT images at the level of the renal vessels. A round lesion with peripheral calcifications (yellow arrow) in continuity with the LT renal artery (red arrow) is demonstrated (Figure 35) on page 37. Follow-up CT angiography of the abdominal aorta revealed an aneurysm of the LT renal artery.

**CASE 32:** Male patient 73 years-old. Symptoms: chronic low back pain exacerbated after mild exercise. T2 weighted axial image. Aneurysmal dilatation of both common iliac arteries (arrows). (Figure 36) on page 37

**CASE 33:**

- Male patient 51 years-old. T1 weighted axial images at the level of LT renal vessels. Aorta (yellow arrow), retroaortic LT renal vein (red arrow). (Figure 37) on page 38
- Male patient 67 years-old. CT examination demonstrates retroaortic LT renal vein. (Figure 38) on page 38
CASE 34: Female patient 42 years-old. Symptoms: chronic low back pain exacerbated after strenuous exercise. T2 weighted coronal (a) and axial (b) images. Dilatation of the LT ovarian vein (yellow arrows) (Figure 39) on page 39. Under the appropriate clinical setting may be the cause of pelvic congestion syndrome.

MUSCULOSKELETAL SYSTEM

CASE 35: Male patient 34 years-old, drug user, presented with acute LT lower back pain which worsened rapidly in the first hours of his admission to the hospital. The patient also became febrile. CT examination. Enlargement of the LT psoas muscle due to a low density lesion with gas bubbles (red arrow) and thickened septa (yellow arrow) (Figure 40) on page 40. The psoas muscle enlargement is obvious also at the topogram of the examination (Figure 41) on page 41. A psoas abscess was considered the most probable diagnosis. Abdominal CT confirmed the diagnosis (yellow arrow) (Figure 42) on page 42

CASE 36: Female patient 78 years-old. Symptoms: chronic low back pain radiating in both legs. T2 weighted axial images. Multiple osteochondromas of the iliac wings. (Figure 43) on page 43

CASE 37: Same patient with case 36. T2 (a) and T1 (b) weighted RT parasagittal images. High intensity lesion (red arrow) in T1 and T2 weighted images consistent with a lipomatosus lesion. (Figure 44) on page 43

CASE 38: Female patient 40 years-old. Symptoms: chronic low back pain. CT examination. Diffuse extensive sclerosis almost exclusively of the iliac bones bilateral at the level of sacroiliac joints apparent also at the topogram of the examination (Figure 45) on page 44. The patient was a multiparous lady. Findings mostly consistent with osteitis condensans illi.

CASE 39: Male patient 28 years-old. Symptoms: chronic low back pain. CT examination (bone algorithm). Irregularity and diffuse sclerosis of sacroiliac joints bilaterally (Figure 46) on page 44. Follow-up laboratory check up revealed ankylosing spondylitis.

ADRENALS

CASE 40:
• Male patient 67 years-old. CT examination. A small round lesion is demonstrated at the LT adrenal gland probably representing an adenoma. (Figure 47) on page 45
• Female patient 44 years-old. Symptoms: acute LT lower back pain. CT examination. A small (<1 cm) round lesion is demonstrated at the RT adrenal gland probably representing an adenoma (Figure 48) on page 46

**CASE 41:** Female patient 58 years-old. Symptoms: chronic low back pain. T2 weighted axial image. Part of a small oval lesion (red arrow) is demonstrated at the anatomic location of the LT adrenal gland, probably representing an adenoma. (Figure 49) on page 47

**VARIOUS**

**CASE 42:** Male patient 67 years-old. Symptoms: chronic low back pain radiating to both legs. CT examination. Bilateral pleural fluid collections (Figure 50) on page 48. No more data are available for this case.

**CASE 43:** Female patient 43 years-old. Symptoms: acute low back pain. LT and RT parasagittal T1 and T2 weighted images reveal cystic lesions (brackets) protruding from the spinal canal to the presacral space. Perineural cysts. (Figure 51) on page 49

**Images for this section:**
Fig. 1: T2 weighted coronal image. Identification of the upper pole of the spleen (yellow star). Ultrasound examination revealed a hypertrophic LT liver lobe with no other obvious abnormality.
**Fig. 2:** T2 weighted coronal image. Craniocaudal enlargement of the RT liver lobe with no focal lesions. Riedel lobe.
Fig. 3: T2 weighted coronal image. Hemangioma of the right liver lobe
**Fig. 4:** T2 weighted coronal image. Small high intensity lesion of the right liver lobe, hyperechoic in follow-up ultrasound. Small hemangioma.
**Fig. 5:** Topogram of CT examination shows calcified well-demarcated round lesion at the anatomic location of the gallbladder (black arrows. Follow-up ultrasound examination revealed multiple gallbladder stones.

**Fig. 6:** CT axial images at the level of the pelvis. Sigmoid colon diverticula with no signs of inflammation.
Fig. 7: Coronal T2 weighted image. Normal RT kidney and enlarged LT kidney with no obvious mass lesion. Contrast-enhanced CT examination of the upper abdomen revealed duplication of the LT kidney.
Fig. 8: Coronal T2 weighted sequential images. Atrophy of the RT kidney (yellow arrow) with compensatory hypertrophy of the LT kidney.

Fig. 9: Two sequential coronal T2 weighted images demonstrate a hypoplastic LT kidney. Normal appearance of the RT kidney.
Fig. 10: T2 weighted axial image. Extrarenal pelvis bilaterally.
Fig. 11: T2 weighted axial (a), coronal (b) and sagittal (c) images. Transplanted kidney in the lower pelvis. Part of the upper pole is demonstrated (yellow arrows).

Fig. 12: T1 (a) and T2 (b) weighted axial images and T2 weighted sagittal image (c). Horse shoe kidney. Isthmus is pointed by yellow arrows in all images.
Fig. 13: T1 weighted (a), T2 weighted (b) axial images and T2 weighted sagittal image (c). Horse shoe kidney. Isthmus is pointed by yellow arrows in all images.
Fig. 14: CT axial image at the level of the kidneys. Renal cyst of the upper pole of the LT kidney
**Fig. 15:** T2 weighted coronal sequential images. Renal cysts at both kidneys.

**Fig. 16:** CT examination. Section at the level of renal pelvis. Parapelvic renal cysts bilaterally (yellow stars).
**Fig. 17:** T1 weighted sagittal (a), T1 weighted STIR GAD sagittal (b) and T2 weighted coronal images. Ectopic LT kidney in the pelvis. Scoliosis of lumbar spine is also obvious.
Fig. 18: T2 (a) and T1 (b) weighted sagittal images and T2 weighted axial (c) image. Ectopic RT kidney in the pelvis.
Fig. 19: T2 weighted axial image at the level of renal pelvis. Malrotation of the LT kidney.
**Fig. 20:** T2 weighted coronal image. LT kidney duplication/malrotation and malrotation of the RT kidney.
Fig. 21: CT examination. An enlargement of the lower pole of the RT kidney was noticed on axial and coronal MPR image. Oblique sagittal MPR image clearly demonstrated a mass (yellow star) causing this enlargement.

Fig. 22: Abdominal CT. Axial and coronal MPR images at the level of the lesion. A 7 cm mass with heterogenous enhancement in arterial phase is demonstrated at the lower pole of the RT kidney.
**Fig. 23:** CT examination. Dilatation of the renal pelvis of the RT Kidney (yellow star) with abrupt transition to a normal ureter (last image-yellow arrow) at the level of pelvoureteral junction. Chronic stenosis of the pelvoureteral junction.
**Fig. 24:** CT examination. Anomalous retrocaval course of RT ureters (arrows). Contrast enhancement of both ureters due to contrast-enhanced CT examination of the brain earlier the same day.

**Fig. 25:** T2 (a) and T1 (b) weighted sagittal images. Polypoid lesion in the urinary bladder (Figure 25). Follow-up ultrasound examination revealed severe hypertrophy of the prostate gland.
Fig. 26: T2 weighted axial (a) and coronal (b) images. Uterus bicornis.
**Fig. 27:** T1 and T2, RT and LT parasagittal images. Bilateral ovarian multilocular cystic lesions. Part of the lesions show high intensity in T1 and T2 images (red stars) (haemorrhage?, fat?) and part of them demonstrate signal intensity similar to simple cyst (yellow stars). Follow-up MRI examination of the pelvis demonstrated hemorrhagic cystic lesions (endometriomas) in both ovaries.
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Fig. 29: RT parasagittal T2 weighted image. Cystic lesions in the uterine cervix (arrow) representing Nabothian cysts.

Fig. 30: CT examination. Axial image at the level of lower pelvis, midsagittal and coronal MPR images demonstrate part of a cystic lesion (yellow star) at the LT side of lower pelvis. Follow-up MRI examination revealed a cystic lesion probably originating from the LT ovary. Pathologic examination of the lesion after surgical removal revealed a cystadenocarcinoma of the LT ovary. A: aorta, yellow arrow: LT ovarian vein.
Fig. 31: CT axial images (from the level of L5 and downwards) at the level of the common iliac arteries. A soft tissue density lesion is demonstrated at the LT aspect of the pelvis in contact with the LT common iliac artery (red arrows). Part of the lesion (at its posterior aspect) appears slightly hyperdense (yellow arrows) a finding consistent with haemorrhagic elements. A soft tissue lesion or a pseudoaneurysm of the LT common iliac artery were initially suspected.
Fig. 32: Follow-up MRI examination. T1 (a) and T1 GAD (b) axial sequences revealed a mixed intensity lesion with intense central enhancement (yellow arrows) similar to vascular structures.
Fig. 33: CT examination. Axial (a) and sagittal MPR (b) images. An aneurysm of the abdominal aorta is demonstrated. Follow-up CT angiography of the abdominal aorta (3D VRT) illustrates the aneurysm
Fig. 34: T2 (a) and T1 (b) weighted midline sagittal images. Small aneurysm of the aorta.

Fig. 35: CT images at the level of the renal vessels. A round lesion with peripheral calcifications (yellow arrow) in continuity with the LT renal artery (red arrow) is demonstrated. Follow-up CT angiography of the abdominal aorta revealed an aneurysm of the LT renal artery.
**Fig. 36:** T2 weighted axial image. Aneurysmal dilatation of both common iliac arteries (yellow arrows)

**Fig. 37:** T1 weighted sequential axial images at the level of LT renal vessels. Aorta (yellow arrow), retroaortic LT renal vein (red arrow)
**Fig. 38:** CT examination demonstrates retroaortic LT renal vein.
Fig. 39: T2 weighted coronal (a) and axial (b) images. Dilatation of the LT ovarian vein (yellow arrows). Under the appropriate clinical setting may be the cause of pelvic congestion syndrome.
Fig. 40: CT examination. Enlargement of the LT psoas muscle due to a low density lesion with gas bubbles (red arrow) and thickened septa (yellow arrow). A psoas abscess was considered the most probable diagnosis.
Fig. 41: The psoas muscle enlargement is obvious also at the topogram of the examination
Fig. 42: Abdominal CT confirmed the diagnosis (yellow arrow).

Fig. 43: T2 weighted axial images. Multiple osteochondromas of the iliac wings.
Fig. 44: T2 (a) and T1 (b) weighted RT parasagittal images. High intensity lesion (red arrow) in T1 and T2 weighted images consistent with a lipomatous lesion.

Fig. 45: CT examination. Diffuse extensive sclerosis almost exclusively of the iliac bones bilateral at the level of sacroiliac joints apparent also at the topogram of the examination. The patient was a multiparous lady. Findings mostly consistent with osteitis condensans illii.
Fig. 46: CT examination. Irregularity and diffuse sclerosis of sacroiliac joints bilaterally. Follow-up laboratory check up revealed ankylosing spondylitis.
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**Fig. 48:** CT examination. A small ( 
**Fig. 49:** T2 weighted axial image. Part of a small oval lesion (red arrow) is demonstrated at the anatomic location of the LT adrenal gland, probably representing an adenoma.
Fig. 50: CT examination. Bilateral pleural fluid collections.
Fig. 51: LT and RT parasagittal T1 and T2 weighted images reveal cystic lesions (brackets) protruding from the spinal canal to the presacral space. Perineural cysts.
Conclusion

Lumbar CT or MRI examinations, obtained mainly for low back pain, may reveal a number of clinical significant or insignificant extraspinal incidental findings from various organs included each time in the field of view of the examination. Careful reporting of these examinations is crucial as some of these findings may be the cause of patients’ symptoms or potentially life-threatening diseases. Medicolegal aspects may arise if missed.

Personal Information

References