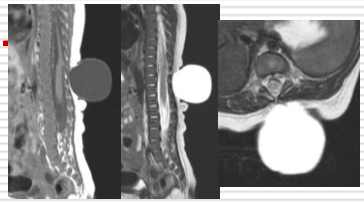
椎管病变的MRI影像征象分析

福建医科大学附属第一医院影像科

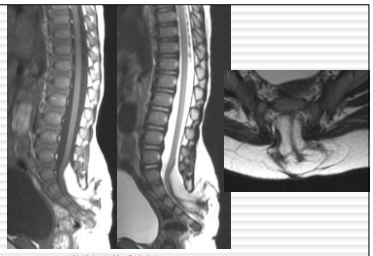
椎管病变的检查方法

X线平片：了解骨质改变。
椎管造影：有创检查，少用。
CT：骨骼病变，髓外病变。
MRI：首选，效果最好。
CTA与MRA：血管性病变。优点：无创。
DSA：血管性病变。

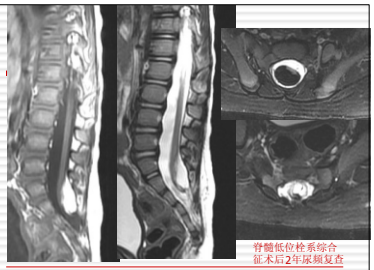


女，1岁，出生后
即发现背部肿物

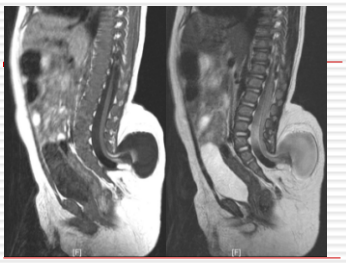
胸段脊膜膨出

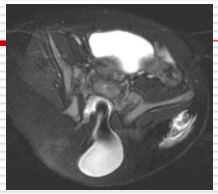


脊髓低位栓系综合征

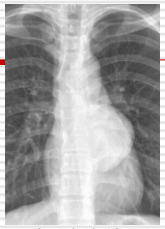


脊髓低位栓系综合
征术后2年原频复查

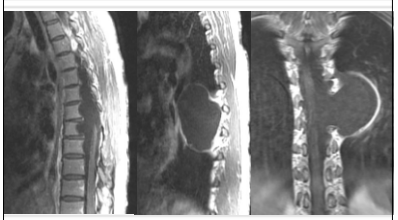




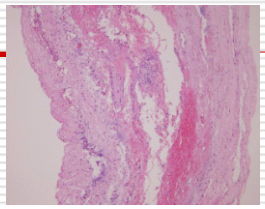
（骶骨膜）符合骶骨膜膨出改变及脂肪组织瘤样增生，查见神经节组织。



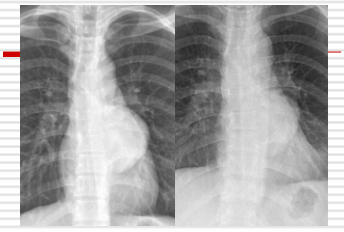
女，29岁，左下肢
麻木伴疼痛半个月。



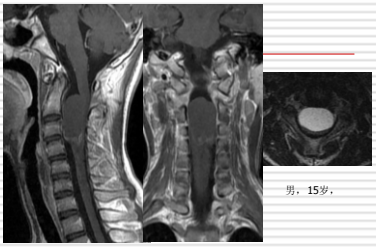
矢状位T1WI—C+　　矢状位T1WI—C+　　冠状位T1WI—C+



镜下见纤维组织增生伴灶区出血及陈旧性出血，炎性细胞浸润，符合囊肿壁组织。



2009-7-24术前胸片　　2009-9-28术后胸片

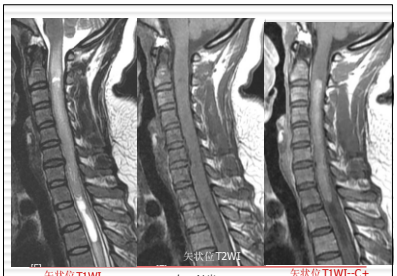


男，15岁，

病理：（C2-C4脊髓腹侧）符合肠源性囊肿。
特染：AB/PAS：阳性。

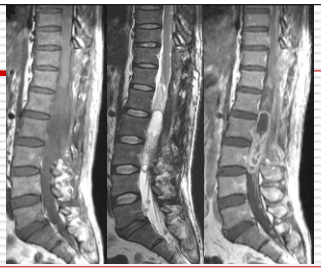
椎管病变分类

髓内病变
髓外硬膜下病变
硬膜外病变

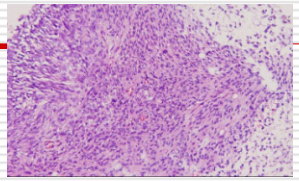


矢状位T1WI　　矢状位T2WI　　矢状位T1WI-C+

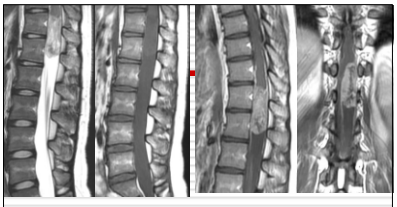
女，41岁，



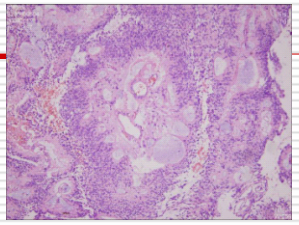
男，42岁，椎管肿瘤术后，双侧肢体麻木半年



（L2-4椎管内）符合间变性室管膜瘤伴坏死（WHOIII级）。



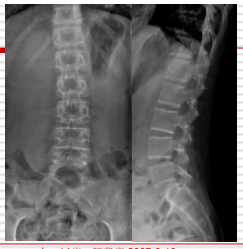
女，16岁，右侧肢体麻木无力



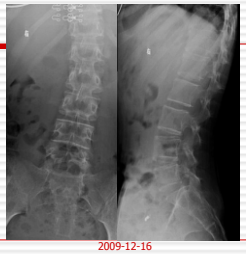
（T11-L1椎管内）间变型室管膜瘤伴坏死（WHOIII级）。
免疫组化：Vimentin（+），GFAP（+），EMA（+/-），Ki-67-8%。

室管膜瘤

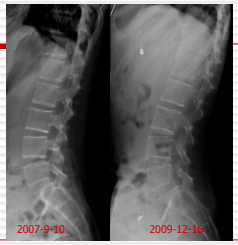
- 部位：脊髓圆锥部、马尾及终丝、颈髓
- 形态：长圆形，球形，分叶状
- 信号：T2WI等低信号，T2WI高信号。
- 增强：实性部分明显强化
- 种植转移和脊髓空洞形成是其较特征改变
- 出血较星形细胞瘤多见。



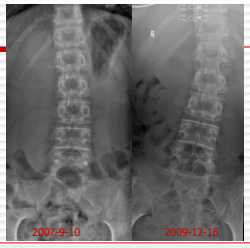
女，14岁，腰背痛 2007-9-10



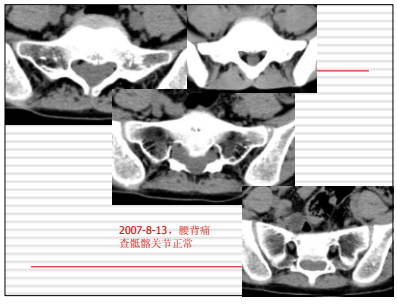
2009-12-16



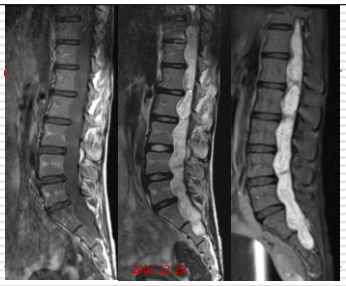
2007-9-10　2009-12-16



2007-9-10　2009-12-16



2007-8-13，腰背痛
查骶髂关节正常



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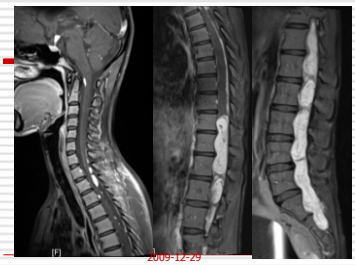

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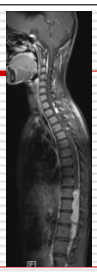
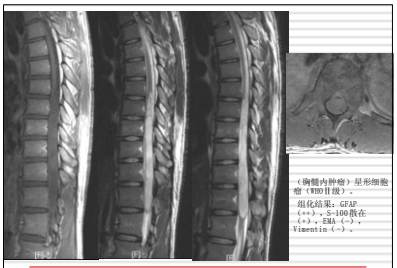
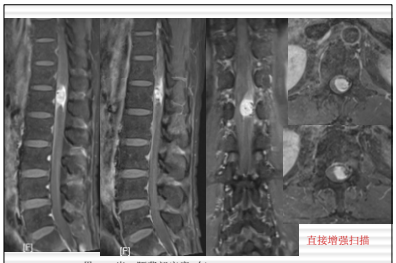


思考

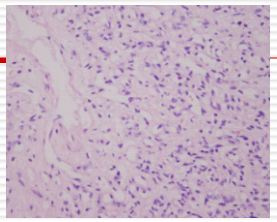
- 熟悉正常影像学表现才能避免对异常征象视而不见。
- 椎管内病变在平片、CT上可有表现
- MRI优于其它影像手段
- 对于椎管室管膜瘤术前需全脊柱及颅脑增强扫描，以发现可能的播散病变。



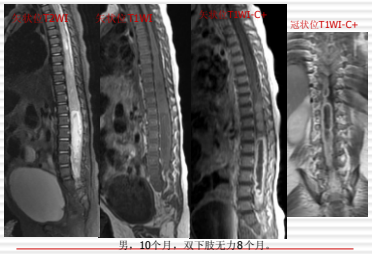
（胸髓内肿瘤）星形细胞瘤（WHO Ⅱ级）：
组化结果：GFAP（++），S-100散在（+），EMA（-），Vimentin（-）。



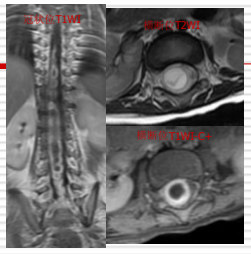
男，42岁，腰背部疼痛1年余，双下肢麻木疼痛半年。

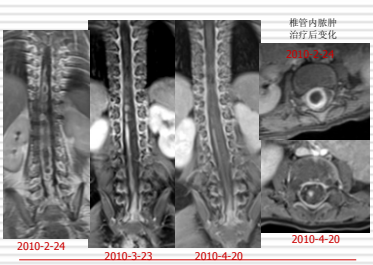


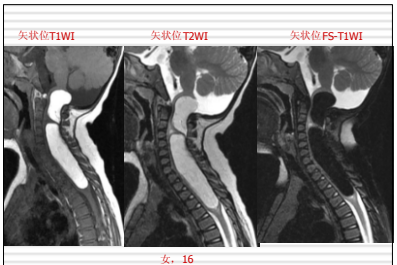
（L1椎管）毛细血管性血管母细胞瘤（WHO Ⅰ级）



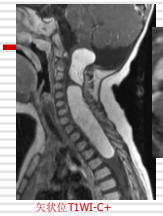
男，10个月，双下肢无力8个月。



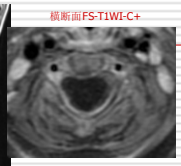




女，16月，



横断面FS-T1WI-C+

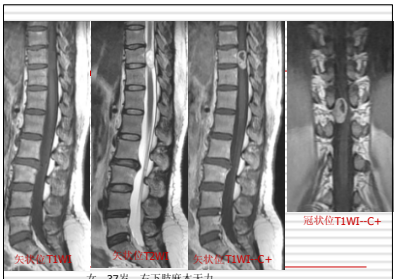


颈髓内脂肪瘤

矢状位T1WI-C+

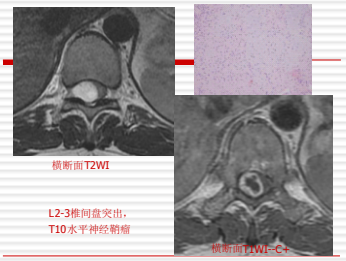
髓外硬膜下病变的定位征象

- 病变节段蛛网膜下腔变窄或消失。
- 病变上下方蛛网膜下腔增宽。
- 脊髓受压变细或移位。



矢状位T1WI　矢状位T2WI　矢状位T1WI-C+　冠状位T1WI--C+

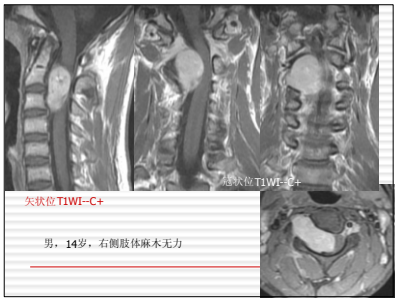
女，37岁，右下肢麻木无力



横断面T2WI

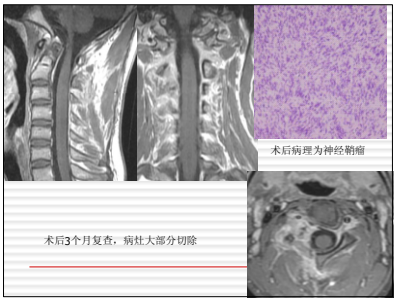
L2-3椎间盘突出，
T10水平神经鞘瘤

横断面T1WI--C+



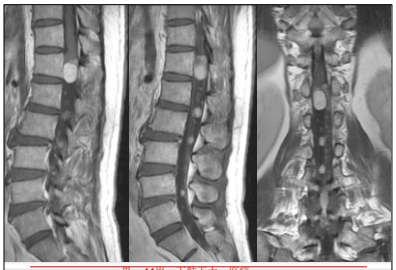
矢状位T1WI--C+　冠状位T1WI-C+

男，14岁，右侧肢体麻木无力

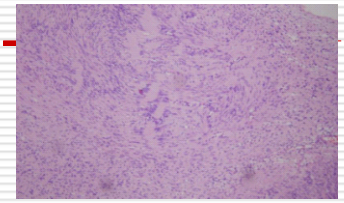


术后病理为神经鞘瘤

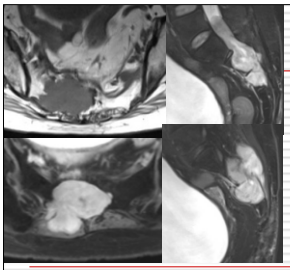
术后3个月复查，病灶大部分切除



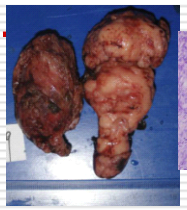
男，44岁，下肢无力、麻痛



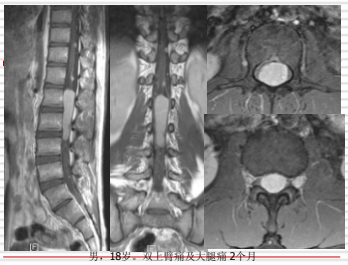
病理示神经鞘瘤



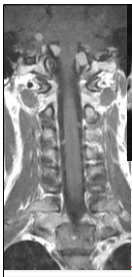
女，40岁，会阴区肿痛1年。



病理诊断恶性外
周神经鞘膜瘤

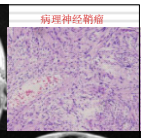


男，18岁，双上肾痛及大腿痛2个月



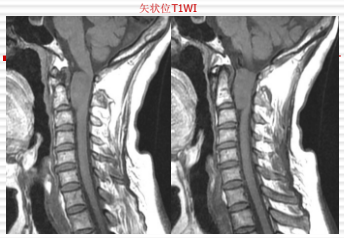
同前病例

病理神经鞘瘤

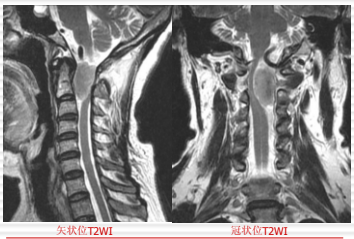


神经纤维瘤病2型

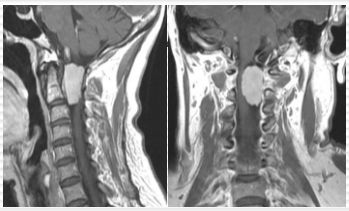
矢状位T1WI



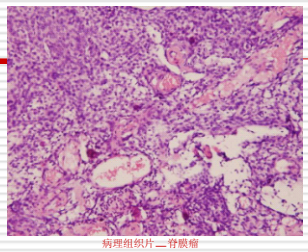
女，58岁，双上肢麻伴
左侧上下肢体麻痛1年半



矢状位T2WI　　冠状位T2WI

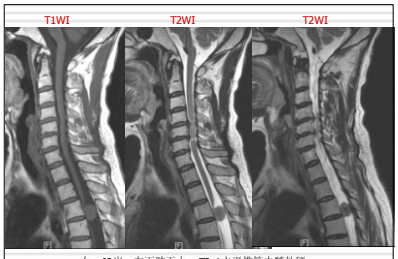


矢状位T1WI--C+　　冠状位T1WI--C+



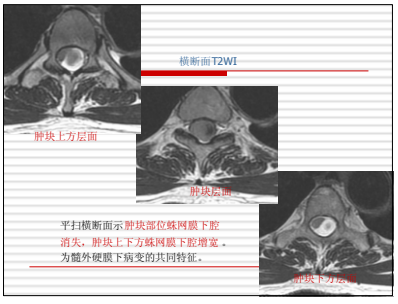
病理组织片—脊膜瘤

T1WI　　T2WI　　T2WI



女，62岁，左下肢无力，T3-4水平椎管内髓外硬
膜下肿块，T1WI呈等信号，T2WI呈低等信号

横断面T2WI

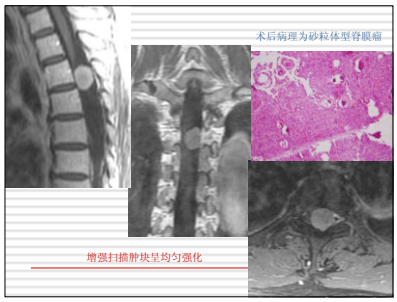


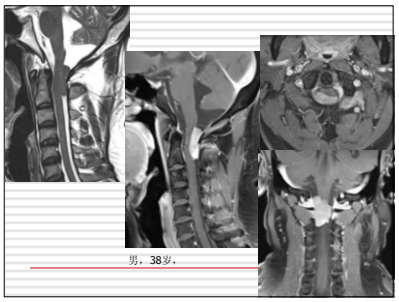
肿块上方层面

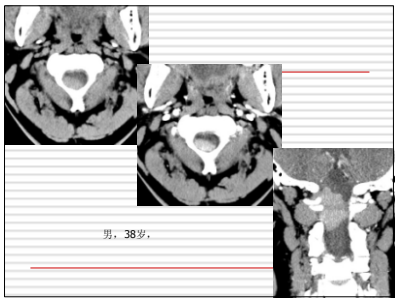
肿块层面

肿块下方层面

平扫横断面示肿块部位蛛网膜下腔
消失，肿块上下方蛛网膜下腔增宽，
为髓外硬膜下病变的共同特征。

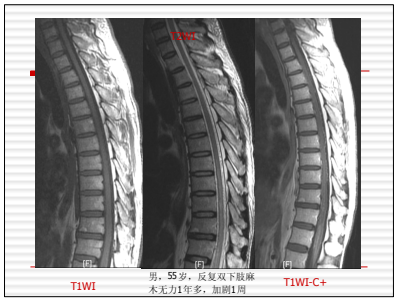


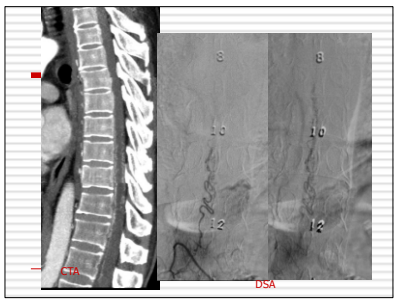




硬脊膜血管畸形（硬脊膜瘘）

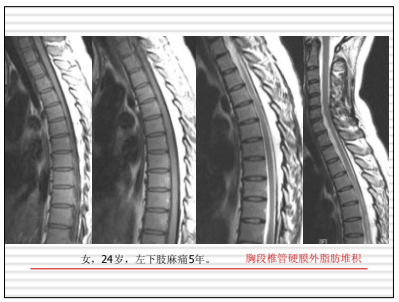
- 部位：胸椎和胸腰椎交界处，T6-T12水平
- 发病年龄：一般超过50岁
- 病变进展缓慢，渐进性脊髓病
- 症状是脊髓水肿和缺血，与迂曲扩张的冠状静脉内压力反向增高有关。
- T2WI上脊髓内高信号，脊髓内或蛛网膜下隙内迂曲扩张的血管流空影，增强后可强化，

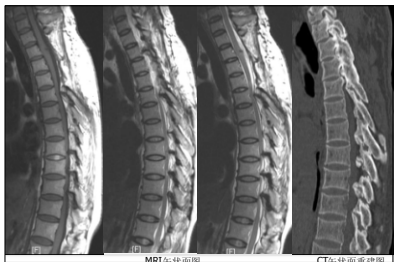




硬膜外病变

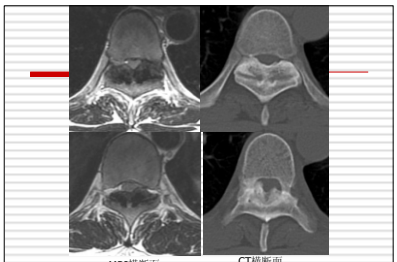
- 常见恶性肿瘤如淋巴瘤、转移癌。
- 炎症性病变：结核，化脓等。
- 黄韧带骨化。
- 后纵韧带骨化。
- 出血。
- 椎间盘突出。



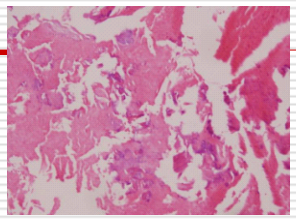


MRI矢状面图　　CT矢状面重建图

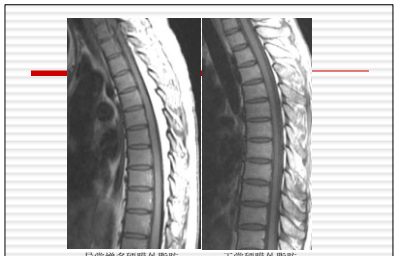
女，52岁，双下肢麻木无力伴行走困难 10年余。



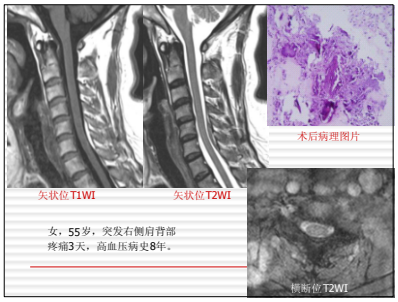
MRI横断面　　CT横断面



（胸椎黄韧带）将合黄韧带骨化改变



异常增多硬膜外脂肪　　正常硬膜外脂肪

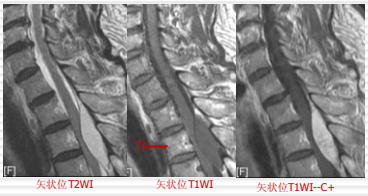


矢状位T1WI　　矢状位T2WI

术后病理图片

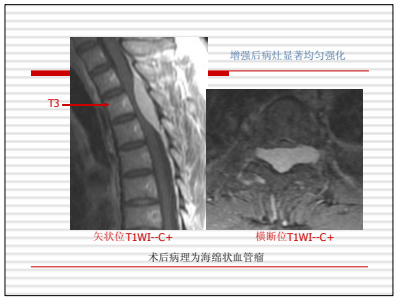
女，55岁，突发右侧肩背部疼痛3天，高血压病史8年。

横断位T2WI



矢状位T2WI　　矢状位T1WI　　矢状位T1WI--C+

男，61岁，双下肢行走困难1个月。

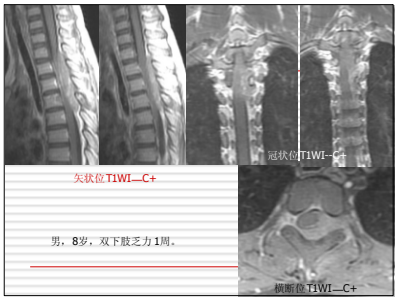


增强后病灶显著均匀强化

T3

矢状位T1WI--C+　　横断位T1WI--C+

术后病理为海绵状血管瘤

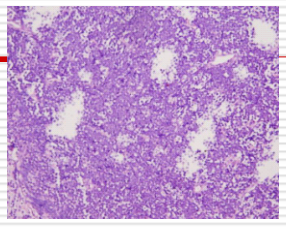


矢状位T1WI—C+

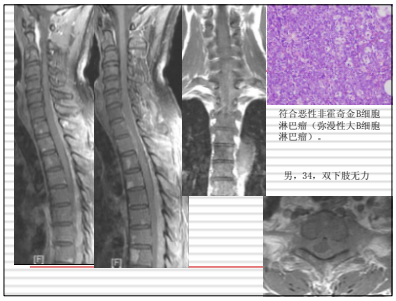
冠状位T1WI--C+

男，8岁，双下肢乏力 1周。

横断位T1WI—C+

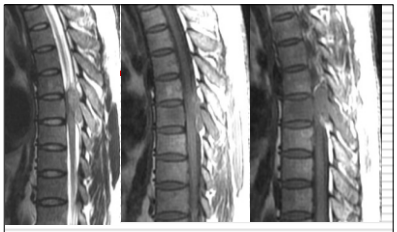


小细胞恶性肿瘤，结合免疫组化结果，考虑B-急性淋巴母细胞性淋巴瘤/急性淋巴细胞白血病

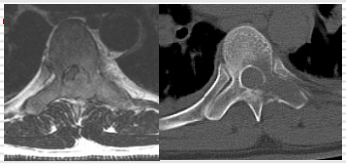


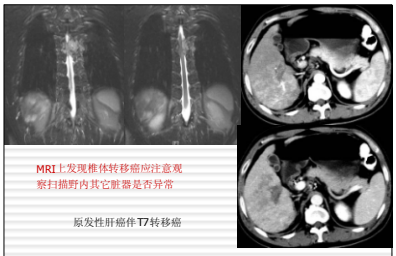
符合恶性非霍奇金B细胞淋巴瘤（弥漫性大B细胞淋巴瘤）。

男，34，双下肢无力



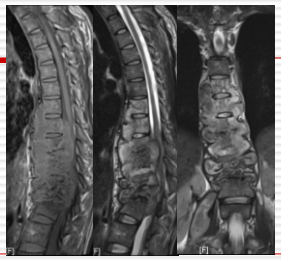
男，34岁，背痛伴双下肢麻木无力 20多天



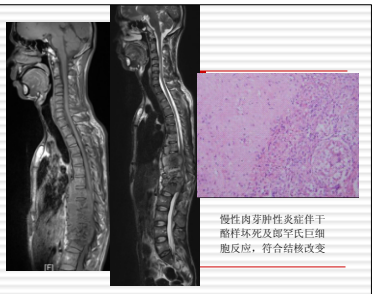


MRI上发现椎体转移癌应注意观察扫描野内其它脏器是否异常

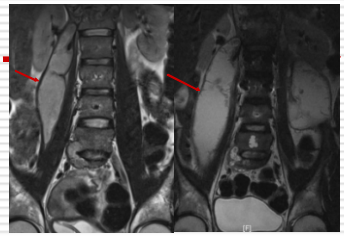
原发性肝癌伴T7转移癌



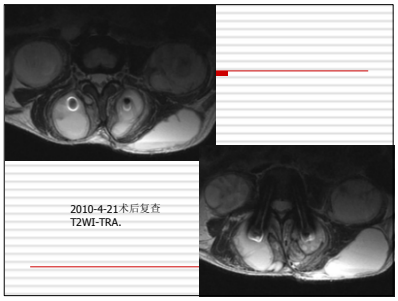
男，34岁，2009-12-29术前片



慢性肉芽肿性炎症伴干酪样坏死及郎罕氏巨细胞反应，符合结核改变



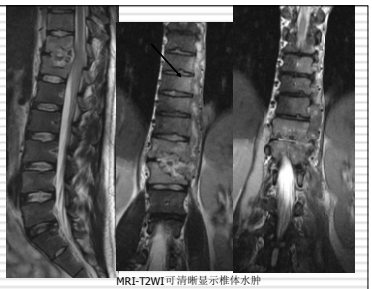
2009-12-29术前片　　2010-4-21术后复查



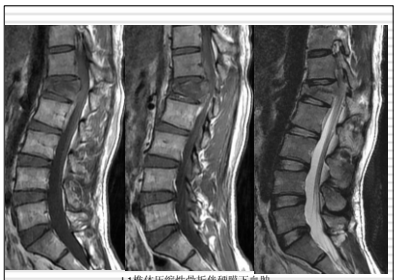
2010-4-21术后复查
T2WI-TRA.

脊柱结核的影像学诊断要点

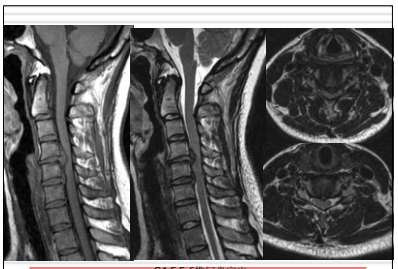
- 常为相邻两个椎体的骨质破坏
- 椎间隙变窄或消失，椎体塌陷，脊柱后突畸形
- 椎旁脓肿形成
- T1WI呈低或等信号，T2WI呈混杂高信号
- 增强扫描均匀强化，不均匀强化及环状强化
- MRI最易显示早期椎体结核的炎性水肿及病变沿前纵韧带下蔓延



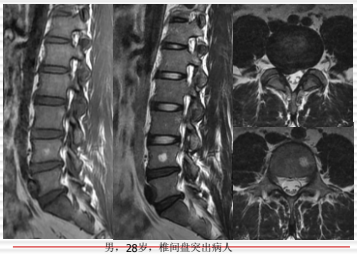
MRI-T2WI可清晰显示椎体水肿



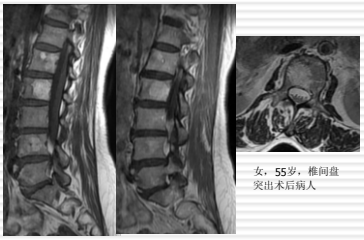
L1椎体压缩性骨折伴硬膜下血肿



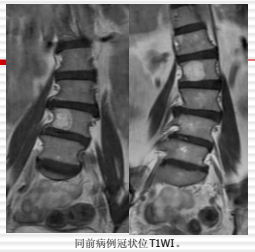
C4-5,5-6椎间盘突出



男，28岁，椎间盘突出病人



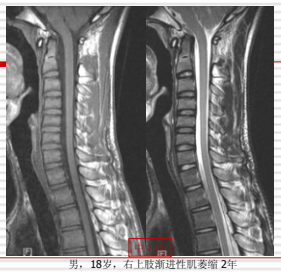
女，55岁，椎间盘突出术后病人



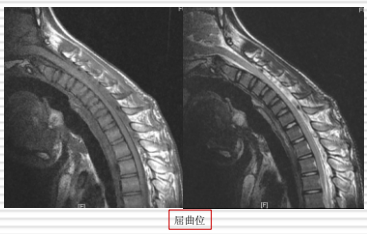
同前病例冠状位T1WI。

椎体血管瘤

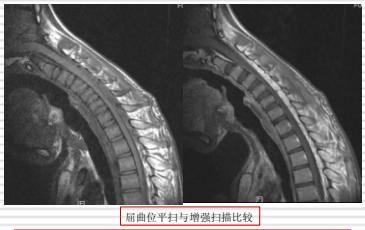
- 生长缓慢的良性肿瘤
- 尸检发生率达11%
- 多无症状
- T1WI和T2WI均呈高信号，界清。
- 增强后强化或无强化



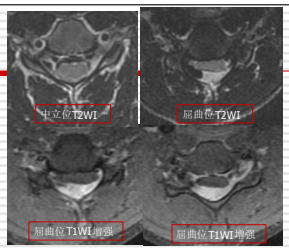
男，18岁，右上肢渐进性肌萎缩 2年



屈曲位



屈曲位平扫与增强扫描比较



- 诊断：平山病
- 平山病(Hirayama Disease,HD)又称青少年上肢远端肌萎缩症(Juvenile Muscular Atrophy of Distal upper Extremity)。

平山病临床表现

- 好发于青春早期，15~25岁为发病高峰，98%在15~30岁之间，男性多见，男女之比约为20：1；
- 隐袭起病，一侧上肢远端(手、前臂)肌萎缩、无力，部分表现为不对称性双侧损害；
- 肌萎缩以手的骨间肌、大小鱼际肌、前臂尺侧肌肉萎缩为主，桡侧肌肉一般不受影响或萎缩较轻，使上肢呈"斜坡样"改变；

平山病临床表现

- 寒冷麻痹和手指伸展时出现震颤；
- 无感觉异常、颅神经损害和括约肌功能障，无锥体束征；
- 病变呈自限性，病后数年病情进行性加重，进展数年后(3~5年)病情静止；

MRI表现

- 自然位：

  生理曲度变直；脊髓曲线异常

  低位颈髓萎缩变细

  髓内异常信号

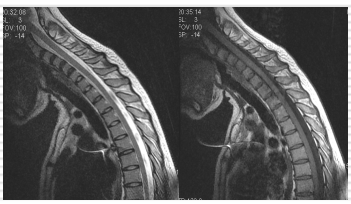
MRI表现

- 过屈位：

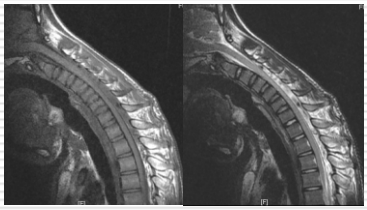
（1）低位颈髓萎缩、变扁平；低位颈髓 C4-7与上节段颈髓比，受损水平颈髓前后径变小；

(2) 硬脊膜外腔增宽，内见新月形长 T2等长T1异常信号影及流空血管影，增强后明显强化，自然位消失。

（3）病变段后硬膜囊及相应脊髓受压前移。



正常人屈曲位



平山病屈曲位

The end !

Thank you !