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· 临床医学图像 ·

弥漫性轴索损伤

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Diffuse axonal injury

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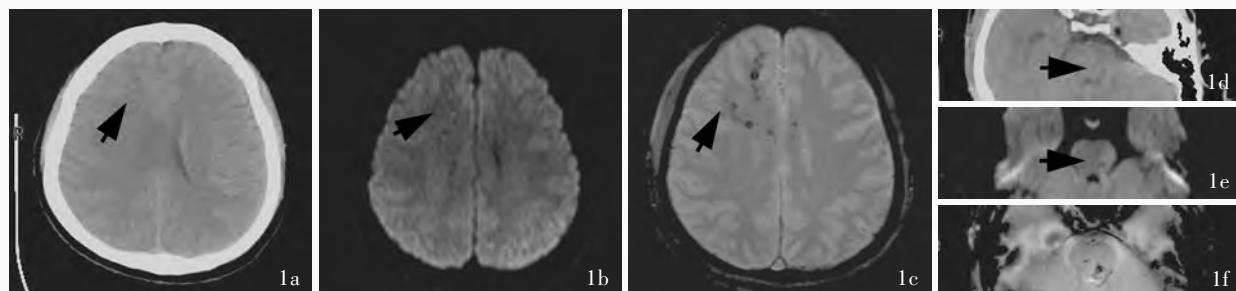


图1 患者 男性,31岁。颅脑创伤(车祸)后昏迷3 d,入院时Glasgow昏迷量表(GCS)评分9分 1a CT平扫显示,右侧额叶皮质下多发点状高密度出血(箭头所示) 1b 横断面DWI显示,右侧额叶皮质下多发点状混杂信号影(箭头所示) 1c 横断面梯度回波成像显示,额叶及胼胝体多发异常低信号影(箭头所示),提示出血性弥漫性轴索损伤,病灶数量明显多于CT及DWI 1d CT平扫显示,脑桥背侧多发点状高密度出血(箭头所示) 1e 横断面DWI除点状低信号影外,还可见脑桥左侧及左侧小脑上脚异常高信号影(箭头所示),提示非出血性弥漫性轴索损伤 1f 横断面梯度回波成像显示,脑桥多发异常低信号影

Figure 1 A 31-year-old male suffered a traffic accident and had been in a coma for 3 d. His GCS score was 9. Axial plain CT scan shows multi-punctiform high density hemorrhage (arrow indicates) in subcortical white matter of right frontal lobe (Panel 1a). DWI shows abnormal multi-punctiform signal (arrow indicates) located in the subcortical white matter of the right frontal lobe (Panel 1b). Gradient echo image shows a great many of low intensity (arrow indicates) which suggested hemorrhagic DAI in the right frontal lobe, body of corpus callosum, the lesions are significantly more than CT and DWI findings (Panel 1c). Axial plain CT scan shows punctiform high density hemorrhage (arrow indicates) in tegmentum of pons (Panel 1d). High intensity lesions (arrow indicates) located in the left rim of pons and left superior cerebellar peduncle suggest nonhemorrhagic DAI (Panel 1e). Gradient echo image shows multifocal low intensity in pons (Panel 1f). The abnormal lesions acquired by GRE were much more than those in CT

弥漫性轴索损伤(DAI)属于闭合性原发弥漫性脑损伤。是由于头部成角、加(减)速运动或旋转性暴力出现弥漫性轴索扭曲、肿胀、断裂及皮髓质交界区穿行血管中断所致。好发于皮髓质交界区、胼胝体、尾状核、丘脑、内囊及中脑被盖的背外侧。其病理变化包括:(1)广泛性轴索损害,累及大脑、脑干和小脑的白质和大脑深部核质,包括中线旁皮质下白质、胼胝体、穹窿柱、内囊、基底节及丘脑、齿状核背侧小脑叶、皮质脊髓束、内侧丘脑系、内侧纵束等。(2)胼胝体局限性出血灶。(3)上脑干背外侧局限性出血灶,病变位于中脑和脑桥上部,单侧或双侧,常累及小脑上脚。CT可正常或显示部分出血性DAI的特征,包括胼胝体及周围、第三脑室周围和脑干小点片状高密度影。MRI对出血性和非出血性DAI的诊断敏感性均优于CT,典型征象包括:(1)对非出血性DAI以扩散加权成像(DWI)最为敏感,表现为圆形、椭圆形或线条状高信号影。(2)对出血性损伤灶以梯度回波序列(GRE)或磁敏感加权成像(SWI)等T₂*序列最为敏感,呈明显低信号。急性期为点状长T₁、长T₂信号;亚急性期T₁WI和T₂WI均呈高信号。(3)随访显示弥漫性脑萎缩、脑室代偿性扩大。陈旧性出血性DAI可见含铁血黄素沉积。诊断须结合外伤病史。非出血性DAI要与脱髓鞘病变、小转移瘤、小血管病变导致的腔隙性梗死相鉴别;出血性DAI要与高血压、血管壁淀粉样变性或隐匿性血管畸形所致微出血鉴别。

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