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CT和MRI诊断脑神经胶质瘤52例分析

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【摘 要】**目的:**探讨CT和MRI影像学在诊断脑神经胶质瘤中的作用。**方法:**回顾性分析2005年1月至2014年12月手术病理确诊的神经胶质瘤患者52例,男性27例,女性25例,年龄(24.5±10.8)岁。患者均进行头颅CT(增强扫描8例)和MRI平扫和增强扫描,这些检查均在术前1周内完成,并对结果进行分析,同时进行随访。**结果:**52例肿瘤直径1.6 cm~8.8 cm,均为单发,幕上42例和幕下10例。42例手术后进行放化疗,10例进行综合治疗。CT显示48例均表现为低密度或混杂密度肿块,4例表现为高密度肿块。MRI显示T_1WI呈轻度低信号或等信号,T_2WI呈高信号,26例有囊性坏死实性小肿块,22例含壁结节性大囊性肿块和4例单纯囊性肿块。神经胶质瘤进行WHO分级结果为:48例为Ⅰ~Ⅱ级,4例为间变型为Ⅲ~Ⅳ级。46例患者接受CT或MRI随访0.5年~6年,失去随访5例,32例病情稳定,9例行2次手术。**结论:**CT和MRI影像学诊断神经胶质瘤有重要的作用。儿童和青少年当肿瘤为囊变实性肿块和壁结节的囊性肿块,且有瘤周围水肿和钙化时应考虑为神经胶质瘤。

【关键词】电子计算机X射线断层扫描术;磁共振成像;神经胶质瘤/诊断;中枢神经系统
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Cerebral glioma diagnosed by CT and MRI: fifty-two cases report

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Abstract: Objective To investigate the effects of CT and MRI in the diagnosis for cerebral glioma. **Methods** Confirmed by operation and pathology from Jan. 2005 to Dec. 2014, 52 patients with glioma were retrospectively analyzed, containing 27 males, 25 females, aged (24.5±10.8) years. In a week before the operation, all patients finished CT scan (8 patients underwent enhancement scan), MRI plain scan and enhancement scan. The results were analyzed. And the patients were followed up. **Results** The gliomas of the 52 cases were signal, with 1.6 cm-8.8 cm diameter, including 42 cases of supratentorial glioma and 10 cases of infratentorial glioma. Among the 52 cases, 42 cases underwent chemotherapy after operation, while another 10 cases were given comprehensive treatment. CT showed that 48 cases presented low density or mixed density mass, and 4 cases presented a high density mass. MRI showed that there was slight low signal or equisignal in T_1WI, high signal in T_2WI, and that there are 26 cases of solid small mass with cystic necrosis, 22 cases of wall nodular large cystic mass, and 4 cases of simple cystic mass. According to WHO standard, 48 cases of gliomas were graded as I-II, and 4 cases with the anaplastic were graded as III-IV. Forty-six patients were followed up for 0.5 years-6.0 years and were examined by CT or MRI. Five cases were lost to follow-up. Thirty-two cases were in a stable condition, and 9 cases underwent secondary operation. **Conclusion** CT and MRI play an important role in the diagnosis of glioma. When the cystic solid masses and wall nodular cystic mass, with edema and calcification around the tumor, are found in the children and adolescents, glioma should be considered.

Key words: CT; MRI; glioma; central nervous system/diagosis; clinical diagnosis

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前　言

发生于神经外胚层的肿瘤称为神经胶质瘤(Glioma),也叫神经外胚层肿瘤(Ectoderm Tumor)或神经上皮肿瘤(Nerve Epithelium Tumor)或神经节神经胶质瘤(Ganglioglioma)。大多数神经肿瘤来源于不同类型神经胶质,从组织发生学上分析其生物学特征是类似的,神经胶质瘤属于发生于神经外胚层的肿瘤。神经胶质瘤发病率约占中枢神经系统肿瘤的0.4%和脑肿瘤的1.3%[1-3],是一种低度恶性和预后较好的肿瘤,是由胶质细胞和神经节细胞不同比例混合组成。临床上神经胶质瘤患者的表现有癫痫、头痛、恶心和呕吐等,但无特异性,因此影像学诊断十分重要。神经胶质瘤的分子生物水平已有相当广泛的研究,我们结合临床改变分析神经胶质瘤的CT和MRI特点,为早期诊断和治疗提供参考。

1 对象和方法

1.1 对象

对2005年1月~2014年12月医院(陕西省第四人民医院和兰州军区兰州总医院)就诊经手术病理确诊的神经胶质瘤患者52例进行回顾性分析,男性27例,女性25例,年龄3岁~54岁(24.5岁±10.8岁)。患者以癫痫和颅内高压(头痛、恶心、呕吐等)就诊,少数患者以感觉、意识、视野等神经功能缺损就诊。全部患者均在术前1周内完成头颅CT(增强扫描8例)和MRI检查(平扫和增强)。

1.2 影像学检查

CT(Philips CT)检查:横断面扫描的管电压和管电流分别为125 kV和200 mA,螺距为1,层厚8 mm。增强扫描对比剂用优维显300,剂量为50 mL。MRI扫描(Philips 1.5T超导磁共振扫描仪)采用自旋回波(SE)和快速自旋回波(TSE)序列扫描,方位为轴位、冠状位和矢状位。按常规要求设置参数:T_1WI(TR和TE分别为400 ms和15 ms),T_2WI(TR和TE分别为3500 ms和110 ms),FLAIR(液体衰减反转恢复)中TR、TE和TI分别为8000 ms、120 ms和110 ms。层厚8 mm,层间距0.8 mm,矩阵256×256,共采集3次~4次。增强扫描经静脉注射钆喷酸葡胺(Gd-DTPA,剂量0.1 mmol/kg~0.2 mmol/kg)。

1.3 图像和数据分析

由两名从事神经放射学诊断5年以上医师进行MRI和CT图像数据分析。医生结合临床对下列特征进行分析:图像位置、肿瘤形态(实体肿瘤有无囊性,囊性肿瘤有无壁结节)、肿瘤表面(周围有无水肿,是否伴随脑积水和周围组织结构是否受压)、是否有钙化,以及增强扫描变化特点等,最后作出影像学结论。

2 结　果

52例肿瘤的发病部位分别是颞叶14例,额叶12例,顶叶10例,枕叶、基底节区和小脑半球各4例,小脑蚓部和视束各2例(图1)。肿瘤直径1.6 cm~8.8 cm,均为单发,幕上42例和幕下10例;边界清晰46例,边界模糊6例;肿瘤内出血16例,肿瘤周围水肿22例,脑水肿14例,中线有移位10例。全部患者均进行手术治疗,其中42例手术后进行放化疗,10例进行综合治疗。

2.1 头颅CT

低密度或混杂密度肿块48例和高密度肿块4例。钙化形成的24例肿瘤可见小斑点状、结节状或弧形,其中4例表现为整个瘤体钙化(图2)。平扫可见囊性坏死的实性小肿块有14例,10例含壁结节的囊性肿块,5例增强扫描后无强化表现。

2.2 头颅MRI

肿瘤含实性囊性坏死小肿块26例(图3),含壁结节性大囊性肿块22例和单纯囊性肿块4例。对于小斑点状钙化灶MRI无法分辨,结节样或弧形钙化在T_1WI和T_2WI上均表现为低信号。相对于灰质的肿瘤实性部分表现为T_1WI低信号,T_2WI和FLAIR高信号,即使增强扫描仍未见强化表现。长T_1和T_2信号见于囊性部分,且FLAIR为低信号,增强扫描无变化。

2.3 组织病理学

外科手术后标本常规进行组织病理学检查,肿瘤细胞为神经胶质细胞和星形细胞,可见钙化,瘤内出血,囊变和肿瘤周炎性反应。神经胶质瘤进行WHO分级结果为:Ⅰ~Ⅱ级48例,4例为间变型Ⅲ~Ⅳ级。活检组织中的胶质纤维酸性蛋白质(GFAP)、突触素、神经元特异性烯醇酶(NSE)在免疫组化分析中可见阳性染色。

2.4 随访

6例患者术后6个月内死亡,46例患者接受MRI随访0.5年~6年,失去随访5例,32例病情稳定,9例行2次手术,包括6例发展为间变型神经胶质瘤和3例原位肿瘤复发,仍在继续随访中。

3 讨　论

神经胶质瘤作为一类低度恶性肿瘤,通过早期

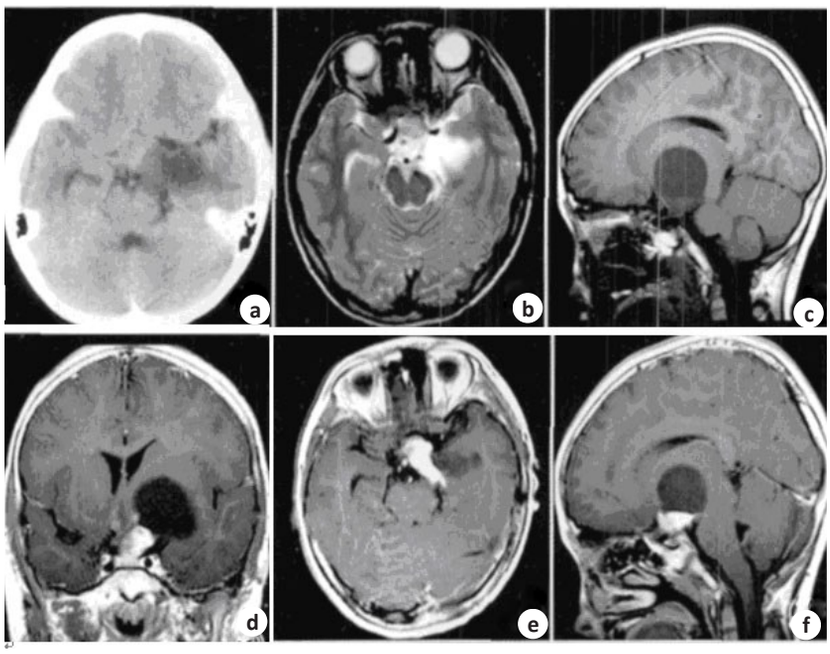

图1　男性，8岁，右侧偏瘫伴左视野缺损1月

Fig.1　Male, aged 8 years, right hemiplegia with left visual field defect for a month

a: CT plain scan showed left temporal lobe cystic mass is about 4.0 cm× 3.0 cm; b: Axial T_2WI; c: Sagittal T1WI; d: Coronal enhanced T_1WI; e: Axial enhanced T_1WI; f: Sagittal enhanced T_1WI

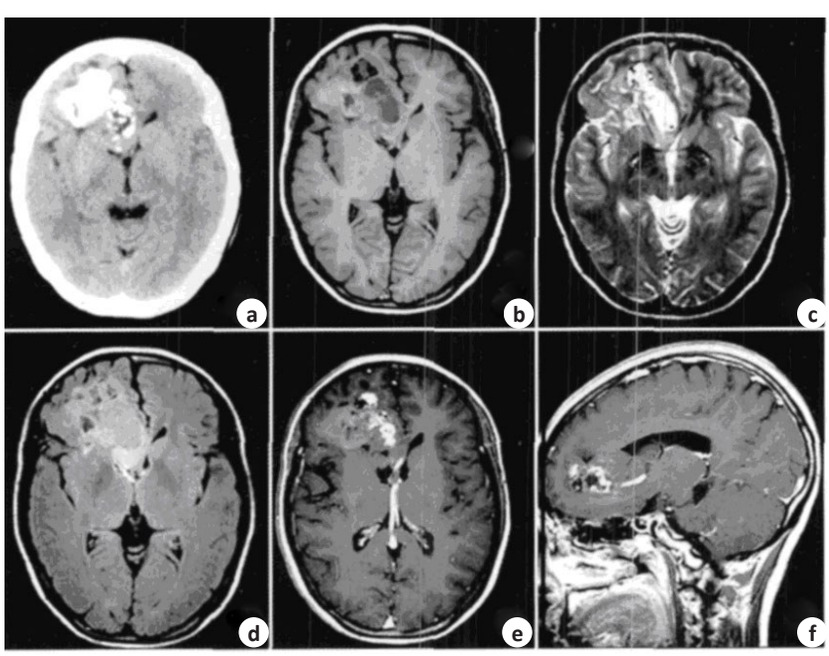

图2　女性，34岁，间断性头痛5年伴颅内压增高2周

Fig.2　Female, aged 34 years, intermittent headache lasting for 5 years, with increased intracranial pressure for 2 weeks

a: CT plain scan showed the complex and irregular calcification density mass in the right temporal; b: Axial T_1WI; c: Axial T_2WI; d: Axial FLAIR; e: Axial enhanced T_1WI; f: Sagittal enhanced T_1WI

诊断早期治疗后临床上为良性病程，但其具有的侵袭性常因诊疗不同而有明显差异[6-9]。神经胶质瘤可发生于任何年龄段，但常见儿童和30岁以下青年，发病无明显性别差异。中枢神经系统的任何部位均可发生神经胶质瘤，包括颅脑、脊髓或视神经等[10-12]。成年颅内神经胶质瘤多发生于大脑半球，发生于幕

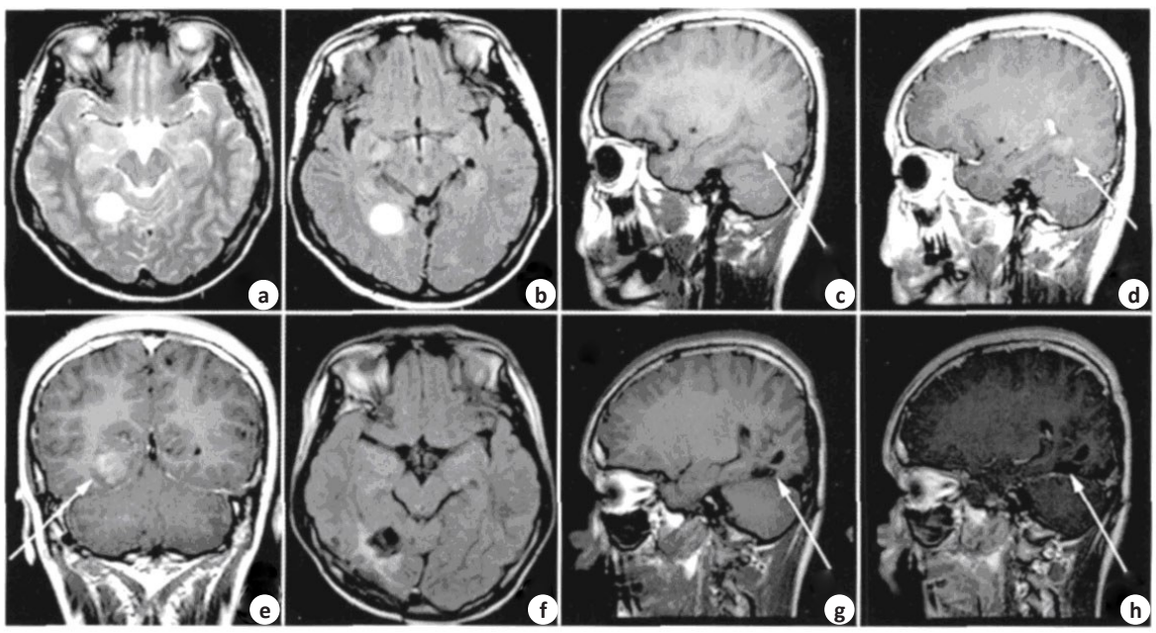

图3　男性，18岁，间断性癫痫发作伴意识丧失2月

Fig.3　Male, aged 18 years, intermittent seizures with loss of consciousness for 2 months

a: Axial T_2WI; b: Axial FLAIR; c: Sagittal T_1WI; d: Enhanced sagittal T_1WI; e: Enhanced coronal T_1WI; f: FLAIR sequence; g: Sagittal T_1WI plain scan; h: Enhanced sagittal T_1WI

下的常见于儿童。好发部位是颞叶和额叶，但也可以发生在丘脑、鞍上区、脑室、松果体区、三叉神经和视交叉[10-14]。临床研究发现，30岁以下患者神经胶质瘤可导致顽固性头痛，原因不明，肿瘤占位性作用则引起颅内高压而出现其他临床症状[14-16]。颅神经麻痹，步态异常和共济失调是后颅窝神经胶质瘤引起[12]。免疫组化分析，神经胶质瘤表现为GFAP和NSE阳性，且典型肿瘤细胞的胞质内含量丰富，细胞核巨大，核仁显著。

神经胶质瘤影像学表现尽管多变，但较多的特征性影像学表现仍然具有重要的诊断价值[13]。大部分恶性程度低的神经胶质瘤边界清晰，在MRI下可以是囊性为主或实性为主类型，表现为囊性、囊实性和实性三部分。我们的研究中神经胶质瘤在影像学中的表现也包括囊性、含有小囊的实性肿块，同时含有壁结节的囊性肿块，且肿瘤越大，占位效应越明显，但这些患者未见单纯的实性肿块。肿瘤引起的脑积水、脑室受压和中线结构移位也在影像学中清晰可见。肿瘤内出血和肿瘤周围水肿表现不具有特征性。本文肿瘤在CT和MRI增强扫描中均表现为明显的不均匀性强化，但有4例囊性肿瘤增强扫描也无改变。神经胶质瘤处于低级别（Ⅰ～Ⅱ级）时，增强扫描可出现“薄云雾”状表现，同时脑回状和结节状影像信号可增强[16-19]。间变型神经胶质瘤影像学的复杂表现，影像上的表现与颅内其他恶性肿瘤容易混淆，鉴别难度大，必须组织病理学检查才能最后诊断。肿瘤钙化是CT扫描下的共性[20-22]，较大范围的钙化在MRI可有特征性改变，对斑点状钙化不敏感。影像学上出现的肿瘤实体丰富的血供可以在病理学得到证实。

多形性黄色星形细胞瘤，以及单纯的神经节细胞瘤和胚胎发育不良性神经上皮瘤(DNT)等与神经胶质瘤在影像学上有相似之处，应加以鉴别[8, 19-21]。多形性黄色星形细胞瘤多见于青少年，成年少见，好发于大脑半球表浅部位的颞叶灰白质交界处，少数病变为囊性伴壁性结节；与神经胶质瘤鉴别比较，多形性黄色星形细胞瘤钙化少见，伴随的宽基底通常与脑膜相连，强化扫描后形成的“脑膜尾征”是其特征之一。此外，也应与神经节细胞瘤相鉴别，肿瘤见于儿童和青少年，颅内颞叶和额顶叶最常见，和神经胶质瘤一样可呈实质性或囊性改变，也有钙化等，确诊主要依靠组织病理学检查。MRI对诊断DNT作用比较大，特征表现是皮层内三角形长T_1和长T_2信号，内有等信号分隔，未见占位性效应，大多数增加扫描无变化。

神经胶质瘤的治疗主要是外科手术切除，对于进行肿瘤次全切的患者，放疗应作为术后辅助治疗的重要手段。文献报道，一些患者放疗后出现间变

型神经胶质瘤[17],这与放疗直接导致肿瘤恶变是否有关仍有待进一步证实[22]。结合临床表现,CT和MRI的特征性影像,使诊断神经胶质瘤成为可能。特别是儿童或30岁以下青年出现顽固性头痛或伴有颅内压升高,影像学检查有囊性肿块伴壁性结节或囊性部分的实性肿块,或伴有钙化,且颞叶和额叶,同时伴有轻度水肿时,应考虑神经胶质瘤。神经胶质瘤的早期诊断和治疗对预后有重要的意义,影像学检查是诊断这一肿瘤最好的方法之一。

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