论　著

CT影像分析在Castleman病术前的诊断价值

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【摘 要】**目的** 探讨局限型和多中心型Castleman病(Castleman Disease,CD)的CT影像学表现，为临床治疗提供有价值的信息。**方法** 回顾性分析36例经过手术之后病理证实为CD患者的CT表现及病理资料。所有病例均进行CT平扫及增强扫描，影像特征由两名放射科医师同时分析，观察病变累及部位、密度特点、强化方式、强化程度等影像学特征。**结果** 局限性患者局限型26例，病理分型均为透明血管型；弥漫型10例(31.2%)，其中8例为浆细胞型，2例为透明血管型。局限性CD CT平扫多呈类圆形软组织密度，密度相对均匀，平扫CT均值为45HU，其中4例病灶内见中央分支状、结节状钙化，2例病灶内部见斑片状低密度灶，24例病例边界清晰，增强特点为明显持续性强化，动脉期CT值平均120HU，静脉期CT值平均111HU；2例病灶周边可见增粗迂曲血伴增大淋巴结。多中心型CD病灶分布广，CT平扫密度类似局限性CD，增强扫描表现多样，无明显特征性，浆细胞型动脉期强化低于透明血管型，延迟期强化甚于动脉期。**结论** 多中心型CD的影像价值高于局限性CD。

【关键词】Castleman病；CT成像；临床分型
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The Value of CT Image Analysis in the Preoperative Diagnosis of Castleman Disease

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ABSTRACT
Objective To explore the CT imaging features of unicentric and multicentric Castleman disease (CD) and provide valuable diagnostic information for clinical practice. Methods A retrospective analysis was performed for the imaging and pathological data of 36 patients with pathologically confirmed CD after surgery. All cases were scanned with contrast-enhanced scanning, and the imaging features were analyzed by two radiologists at the same time, and the imaging features such as lesion involvement, density characteristics, enhancement methods, and enhancement degree were observed. Results There were 26 patients with unicentric type, all of whom were classified into hyaline vascular type, and 10 cases (31.2%) were diffuse type, of which 8 cases were plasma cell type and 2 cases were hyaline vascular type. The mean value of noncontrast CT was 45 HU, of which 4 cases showed central branching and nodular calcification, and 2 cases showed patchy hypodense lesions in the lesions, and 24 cases had clear boundaries and enhancement was characterized by obvious continuous enhancement, with an average CT value of 120 HU in the arterial phase and an average CT value of 111 HU in the venous phase. Multicentric CD lesions were widely distributed, the density of non-contrast CT was similar to that of localized CD, the enhanced scan showed a variety of findings, and there were no obvious characteristics, and the enhancement of the plasma cell arterial phase was lower than that of the hyaline vascular type, and the enhancement of the delayed phase was more than that of the arterial phase. Conclusion The imaging value of multicentric CD is higher than that of localized CD.
Keywords: Castleman's Disease; Computed Tomography; Clinical Type Of Pathology

Castleman病(Castleman's disease, CD)是一种慢性淋巴组织增生性疾病，在临床上病例较少。CD可发生在全身各个部位，以胸部、腹部和颈部多见，伴或不伴有多系统的损伤[1]；近年的研究认为该病与HHV-8及HIV有一定的相关性[2-3]。临床按照病变范围将CD分为局限型和多中心型，这二者均可出现一定的临床症状，但无特异性的表现[4]。CD病理分型可分为透明血管型、浆细胞型和混合型。本研究分析不同病理类型和发生在不同部位的病灶，旨在总结CD的影像学特征，能为临床的诊断提供更多有价值的信息，以便能为患者及早治疗。目前，针对CD的治疗手段主要是手术切除，再联合化疗[5-6]。

1 资料和方法

1.1 研究对象 回顾性分析2020年3月到2023年12月苏州大学附属第一医院经病理证实为CD的36例患者临床及影像资料。按照临床分型，分为局限型26例，多中心型10例；局限型男8例，女18例， 年龄22~63岁；多中心型男6例，女4例，年龄43~66岁。

1.2 检查方法 CT检查采用Siemens SOMATOM Sensation 64 排扫描仪，扫面参数：管电压120Kv，自动管电流，层厚5.0mm/6.0mm，间隔1.4mm。增强采用非离子型碘对比剂80mL(优维显, 300mgI/mL)，注射速率3mL/s。

1.3 图像分析 图像由两名主治医师共同分析，包括病灶的部位、大小、边缘、密度、增强后病灶强化程度、强化方式、与临近组织的关系。其中强化程度按照CT值增加分4度，无无强化者为0-10HU，轻度强化者为11-20HU，中度强化为21-40HU，明显强化为41HU以上。

2 结　果

2.1 影像学表现 局灶性CD 6例位于上纵隔，3例位于颈部，5例位于胸部，12例位于腹盆部(包括肝门、腹壁下、胰腺后方、肝肾间隙、肾下极、肠系膜间隙)(图1~2)；CT平扫示病灶呈单纯孤立肿瘤样病变，形态呈不规则型、椭圆形，最大径为2cm-7.4cm，边缘清晰光滑者24例，边缘与周围组织分界不清者2例，其中4例病灶内见中央分支状、结节状钙化，2例病灶内部见斑片状低密度灶，2例病灶周边可见增粗迂曲血伴增大淋巴结，增强特点为明显持续性强化，且多为4度明显强化，动脉期与静脉期CT值在110-120HU。多中心型CD病灶分布广，10例累及颈部、各8例累及腋窝及腹股沟，3例累及

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锁骨下，4例累及纵隔、6例累及腹部；CT平扫密度与局限性CD相仿，增强扫描表现多样，可表现为1-4度强化，但部分浆细胞型动脉期强化低于透明血管型，延迟期强化甚于动脉期。

2.2 临床表现与病理分型 26例局限性CD均是透明血管型，10例多中心CD中有8例是浆细胞型，2例是透明血管型；他们的临床表现多样化，部分患者经由体检发现，部分有一定的临床症状，其中3例胸部局限性CD有胸闷、发热等表现；5例累及腹盆部患者有腹胀、腹痛等表现；1例患者有血尿和全身水肿的表现。

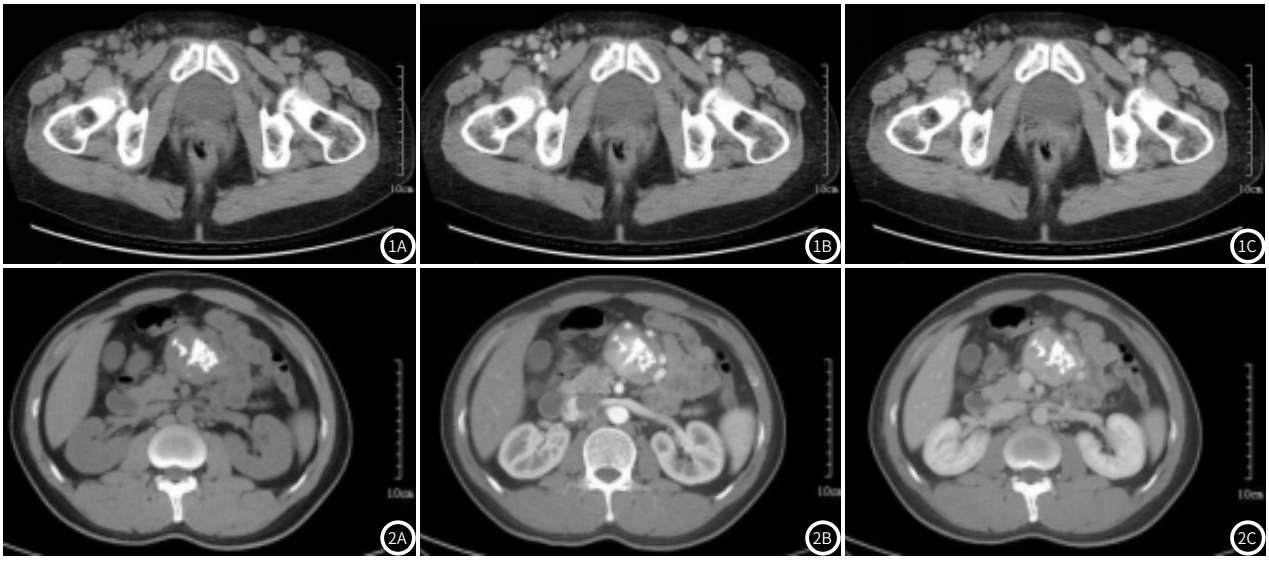

图1 女，63岁，发现腋窝、腹股沟多发小结节就诊。图1A～1C双侧腹股沟CT平扫、动脉期、静脉期图像。
图2 男，31岁，体检发现病灶就诊。图2A示中腹部肠系膜内病灶，呈软组织密度影，内部见分支状及结节状钙化灶；图2B～2C分别是增强扫描动脉期及静脉期，病灶软组织部分显著强化，静脉期持续强化。

3 讨 论

CD病的主要病理改变是淋巴组织和小血管肿瘤样良性增生。文献报道[7]该病发生于存在淋巴结的任何部位，以胸部纵隔、颈部、腹部、腋窝等部位多见 。本组36例病例中以腹盆部18例最多，同时报道中女性多见，与此次研究相符[8-10]。临床实验室检查多无明显异常，少数伴发炎症因子升高、高球蛋白血症等 ,此外病灶体积较大会压迫周围组织引起临床症状，颈部压迫症状较常见[11-12]。临床确诊主要依靠淋巴结活检，病理结果将CD分为透明血管型、浆细胞型、混合型。局限型CD中多见透明血管型，病理上表现为滤泡内和滤泡间淋巴组织增生[13-14]。多中心型多见于浆细胞型，病理上以大滤泡间浆细胞浸润为主，血管增生少[16]。

CD的影像表现与病灶部位以及病理类型密切相关，局限型CD主要分布在纵隔、腹盆等中轴淋巴系统[15]。CT表现为单发软组织肿块，绝大多数密度均匀，一般无坏死、液化或出血，与病灶血供丰富、侧支循环良好及淋巴组织特性相关[15-16]。曾有研究[17]报道虽然瘤内分支状、蛋壳样、簇状钙化发生率能有5%-10%，但多认为无特异性[18]。结合本研究病理结果发现，钙化形态可能对CD的诊断有提示作用。病灶增强扫描特征为肿块软组织部分呈轻-中度强化或明显强化，其强化程度与其病例类型有关，透明血管型和混合型CD血管增生明显，血管网丰富，在增强后明显强化并持续强化。浆细胞型因供血血管较少可呈轻中度强化，也可见明显强化，但通过本研究可发现该病理类型静脉期的强化程度高于动脉期，该结论亦有文献报道[19-21]。CD的多期强化程度的特点尚需要更多的病例进行下一步的研究，该特征在鉴别诊断中有一定的作用。

CD的影像表现在各部位均有其它组织来源的病变与其鉴别，主要根据病灶的数量和发生的部位进行鉴别诊断。在肺内的病灶，应注意与肺癌鉴别，该病变的特征性表现不如肺癌，比如肺癌有分叶、胸膜牵拉等特征，同时肺癌的临床表现纵隔的病灶考虑与胸腺瘤、淋巴瘤、神经源性肿瘤进行鉴别，CD的病灶内部出现囊变坏死的概率低于其他这些病变，有助于鉴别；腹盆部的病灶与嗜铬细胞瘤等血供较为丰富的肿瘤强化程度都较明显，单从强化难以鉴别开，此时需要借助于临床某些指标检查结合判断；多中心型CD鉴别诊断包括淋巴瘤、结节病等，这些病变均可表现为多部位淋巴结肿大，但是结节病病灶局限于胸部，淋巴瘤若能见到血管包埋有助于诊断。综上，CD的部发生部位、内部钙化及强化特点能为临床的诊断提供一定的信息[18,22-23]。

本研究的不足之处在于病例总数有限，缺少MR的相关信息，今后的研究有待增加样本量。当前，深度学习发展迅速，它可通过深度神经网络架构改进对图像的分析，因而潜力巨大，在医学图像的应用上具有重大的作用，它能自动从样本数据中获取优良的特征，并用于影像图像的处理和分析，以期达到自动识别病灶的目的；所以待样本量较大时将深度学习用于该疾病的探索，进一步研究CD的影像学特征。

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