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肺炎型肺癌的影像学特点及误诊分析*

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摘要 目的:探讨肺炎型肺癌影像学特点,深入肺炎型肺癌认识,提高诊断水平,降低临床误诊率。**方法:**随机选取 2013 年 1 月份至 2014 年 2 月份我院胸外科住院治疗的 36 例肺炎型肺癌患者作为研究对象,回顾性分析全部患者的影像学资料及病理检查结果。**结果:**患者病变部位在各肺段均有分布,局限性及弥漫性分布均可见,其中局灶性分布较大,未出现跨越肺段侵袭肺叶的病例。影像表现主要为边缘不清云絮状肿块影、云絮状影伴结节、肺段实变影、肺实变伴空泡及蜂窝状影、肺炎纤维样化及混合阴影。其中,单纯性磨玻璃影 10 例;磨玻璃结节肿块 10 例;肺段分布实变影 7 例;肺叶及肺段实变伴空泡或蜂窝状影 6 例;肺炎样纤维化及肿块 10 例;混合阴影(4 种或 4 种以上阴影并存)3 例。**结论:**肺炎型肺癌患者影像学检查结果多具有肺炎样改变,极易误诊肺炎性疾病,临床诊断中结合活检检查技术,有利于改善临床诊断正确率。

关键词:肺炎型肺癌;影像学;误诊

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Imaging Features of Pneumonia Lung Cancer and Misdiagnosis*

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ABSTRACT Objective: To investigate the imaging features of pneumonic lung cancer, in order to improve the diagnosis of this disease and reduce the misdiagnosis rate. **Methods:** 36 patients hospitalized with pneumonia lung cancer patients from January 2013 to February 2014 in our hospital thoracic surgery were randomly selected as research subjects. All patients were retrospectively analyzed the imaging data and pathological findings. Among them, there were 10 cases of simple ground glass shadow, ground glass nodular mass 10 cases, lung segment consolidation shadows in 7 cases, consolidation of the lung and lung segment with cavitation or honeycomb shade 6 cases, 10 cases of pneumonia fibrosis and tumor, mixed shadow (four or more than four shadow coexist) in 3 patients. **Results:** The lung lesions could be situated in every pulmonary segment, with more focal distribution, non-invasive the lobe spanning the pulmonary segment. The imaging characteristic mainly included the flocculent mass with unclear boundary, cottony clouds shadow with nodules, pulmonary segments opacities, pulmonary consolidation with vacuoles and honeycomb shadow, pneumonia-like fibrosis and mixed shadows. **Conclusions:** The pneumonia lung cancer showed more pneumonia-like changes in imaging, and could be easily misdiagnosed as pneumonia, so the imaging combined with the biopsy techniques would help to improve the accuracy of clinical diagnosis of pneumonia lung cancer.

Key words: Pneumonia lung cancer; Imaging; Misdiagnosis

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前言

肺炎型肺癌(pneumonic-type lung cancer, PTCL)是临床不常见一种肺癌,但是由于其疾病早期无特异性临床表现,X 线与 CT 等也缺乏特异性,容易与肺结核、肺部炎症等疾病相混淆,临床早期诊断困难重重,极易误诊为肺部炎症性疾病,耽误患者治疗^[1-3]。肺炎型肺癌主要好发于老年男性群体,多数患者有吸烟史,主要表现为咳嗽咳痰,伴发热,病灶多分布在肺周边,实验室和影像学检查在疾病早期多无特征性表现,首诊极

易误诊为肺炎、肺结核等疾病^[4-6]。肺炎型肺癌与局灶性肺炎以及肺结核相似性较高是临床容易发生误诊的主要原因^[7]。本研究通过回顾性分析肺炎型肺癌患者的临床资料,总结肺炎型肺癌的影像学特点,探讨肺炎型肺癌误诊原因,旨在为临床诊断提供参考,现将结果总结如下。

1 资料与方法

1.1 临床资料

随机选取我院胸外科病房在 2013 年 1 月份至 2014 年 2

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月份期间治疗的 36 例肺炎型肺癌患者为研究对象。其中男 22 例,女 14 例,年龄 27-81 岁,平均(58.42± 5.67)岁,病程 1 个月-2.5 年,平均(13.58± 8.69)个月。本组患者全部有吸烟史,其中 16 例患者每年吸烟超过 450 支。4 例患者合并慢阻肺,3 例患者合并肺结核,2 例患者合并支扩,2 例合并哮喘,1 例为肺间质性肺炎。全部 36 例患者中,根据临床及影像学表现在门诊或入院时即被明确诊断为肺炎型肺癌的仅有 10 例患者,临床正确诊断率为 27.78%,其余均被误诊,其中 16 例误诊为大叶性肺炎,3 例误诊为慢性阻塞性肺疾病急性发作,3 例误诊为肺结核,2 例误诊为支气管扩张伴感染,2 例患者诊断为间质性肺炎,误诊率高达 72.22%。

1.2 临床表现

本病主要临床表现为咳嗽咳痰,发热胸痛,严重者咳血,肺部听诊可闻及哮鸣音。本实验中 11 例患者为痰中带血;其余 25 例患者为白色泡沫痰或黄黏痰;8 例患者伴有呼吸困难;16 例患者出现不同程度发热,体温 38.0-39.5℃;7 例患者伴有寒颤胸痛;6 例患者伴有腰背部疼痛;听诊共 17 例患者肺部可闻及湿啰音,9 例患者肺部可闻及哮鸣音;6 例患者锁骨上淋巴结发生肿大。实验室检查结果为:15 例患者外周血中 WBC> 10.0× 10⁹/L,9 例患者中性粒细胞> 80%,13 例患者血沉增快,10 患者血细菌培养结果阴性。

1.3 影像学检查

本实验中全部患者在手术前均采取摄胸部正侧位片以及 CT 扫描检查。X 线检查应用的机器为飞利浦 DR 机(荷兰生产),AGFA-5302 型干式相机及影像工作站后处理系统。CT 检查使用机器为双排螺旋 CT 机(德国西门子公司生产),扫面方式采取平扫加增强。

1.4 分析方法

由两名经验丰富的影像科医师在对病理结果不知情的情况下,对影像表现进行仔细分析,总结影像表现特点,然后会同病理科医师,将影像学结果与支气管镜活检、CT 引导下穿刺活检及手术病理切片等病理结果进行对照分析。

1.5 确诊方法

本实验,8 例患者经纤维支气管镜病理检查确诊为肺炎型肺癌,4 例患者经胸腔积液脱落细胞检查确诊为肺炎型肺癌,1 经皮肺穿刺确诊为肺炎型肺癌。全部 36 例患者均采取手术治疗,手术最终病理学诊断结果为 27 例患者为腺癌,6 例患者为鳞癌,3 例患者为小细胞未分化癌。

2 结果

2.1 病变部位及范围

本实验中患者的病变部位在各肺段均有分布,局限性及弥漫性分布均可见,其中局灶性分布较大,未出现跨越肺段侵袭肺叶的病例。

2.2 影像表现分型

根据影像学特点,可将肺炎型肺癌影像学表现分为 6 型:(1)单纯性磨玻璃影:云絮状肿块影,边缘不清晰,本实验中共出现 10 例(图 1 A),主要影像学表现为呈局限性分布的片状密度增高影,大片状和弥漫分布密度增高影,边缘模糊,其内可见血管及支气管模糊影像;(2)磨玻璃结节肿块:云絮状影伴结节,本实验中共出现 10 例(图 1 B);(3)肺段分布实变影:本实验中共出现 7 例,肺段体积有所缩小,但不明显;(4)肺叶及肺段实变伴空泡或蜂窝状影:本实验中共出现 6 例(图 1 C);(5)肺炎样纤维化及肿块:本实验中共出现 10 例(图 1 D);(6)混合阴影:4 种或 4 种以上阴影并存,本实验中共出现 3 例。详见表 1。

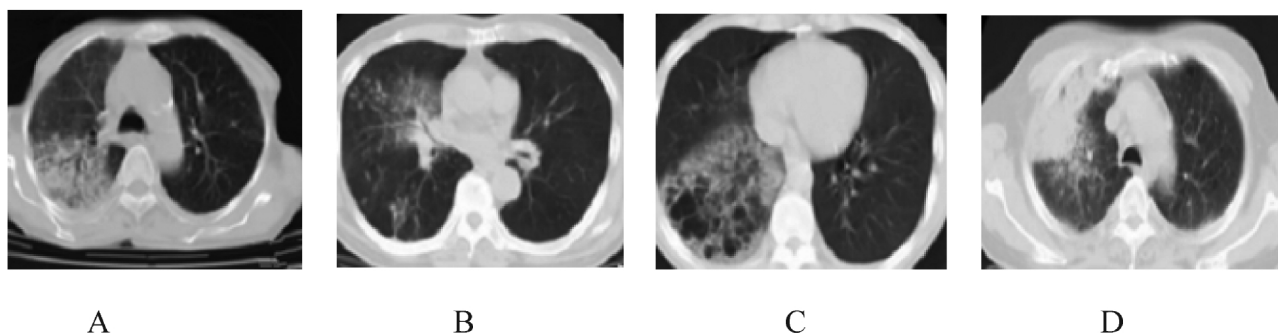


图 1 不同型肺炎型肺癌影像学表现

Fig. 1 Performance of different type of pneumonia type carcinoma of lung imaging

Note: A: Limitations of patchy shadows of high density distribution; B:Right upper lobe of lung cloudy opacity with nodules; C:lung consolidation with cavitation and honeycomb shadow; D:lung pneumonia like fibrosis and mass density

表 1 肺炎型肺癌影像分布特点

Table 1 The image characteristics of pneumonia type carcinoma of lung

Distribution	Simple ground glass	Ground glass nodular	Segmental distribution	Cavitation in Lobe and segment	Fibrosis alike and mass	Hybrid
Limitations	6	9	7	4	8	2
Diffusivity	4	1	0	2	2	0

2.3 X线摄片结果

胸部平片X线主要表现为某一肺段肺叶出现片状或大片状的密度增高影,密度均匀,边缘不清,可伴空气支气管征,少数在肺实变边缘处可见斑点状钙化灶,肺实变多分布在两肺中下部,肺门影无明显变化(图2A、B)。本实验中共有14例患者在初次拍摄胸片时以肺段或肺叶致密浸润阴影或大片片状阴影为主要表现,其中6例为双肺下叶云絮状浸润致密影,3例为右肺上叶致密影,3例为右肺中叶大片状阴影,1例为左肺上叶斑片状阴影,1例为左肺舌叶致密影。

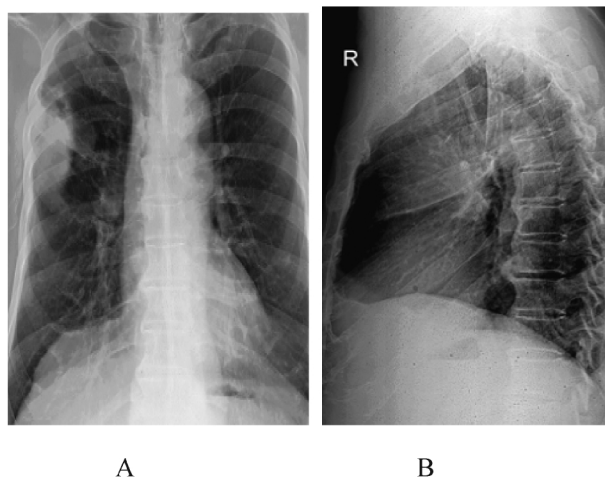


图2 胸部侧位片显示右肺大片状实变影

Fig. 2 Lateral chest film showed patchy opacities of the right lung

2.4 CT扫描结果

CT表现主要为按肺段肺叶分布高密度影,可见空气支气管征,少数病例可见枯枝征(图3)。本实验中19例患者表现为病变部位呈片状致密影,其中4例患者为片状阴影伴结节阴影,12例患者未出现支气管充气征、胸膜凹陷征、阴影边缘毛刺征、血管束束征及空泡征等周围性肺癌特征性影像学表现。

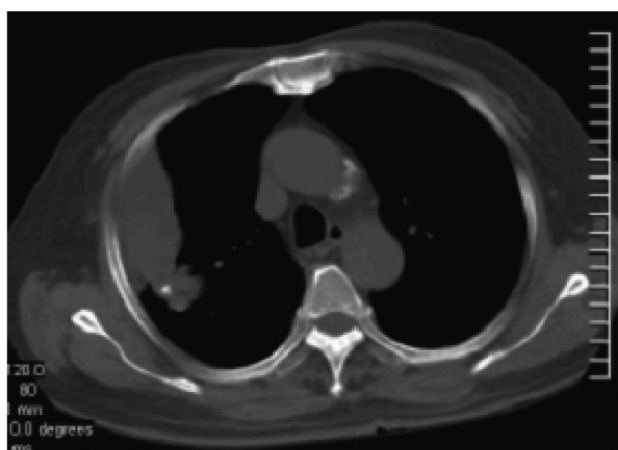


图3 CT显示右肺大片状实变影伴钙化灶

Fig. 3 CT display the right lung patchy opacities with calcification

3 讨论

肺炎型肺癌早期仅侵袭呼吸道,粘膜表面主要为柱状细胞,分泌大量粘液,影像学表现为浸润致密影或大片状斑片状

模糊阴影,肺炎的影像学表现为沿肺纹理分布的密度阴影^[8,9],慢性炎症可见肺组织纤维化,二者X线及CT扫描极为相似,而X线摄片、CT扫描等影像学表现不典型则更增加了早期准确对肺炎型肺癌进行诊断的难度^[10-13]。肺炎型肺癌的CT扫描检查表现有一定的特点:如支气管充气征(癌细胞沿着肺泡壁生长且分泌黏液而引起肺组织实变,而其内的支气管未受侵犯,与实变形成明显的对比,即表现为支气管充气征),空泡征(囊状低密度影),血管征,周边结节影及磨玻璃影,病灶的外周分布等,但缺乏特异性,临床及影像与肺炎或结核有相似之处,单纯的影像鉴别有一定的困难。

相关研究认为^[14-17]肺炎型肺癌影像学虽然与肺炎相似,但其具有局限性分布,多为呈淡片状磨玻璃影,伴结节灶或实变区支气管僵直等特点,当抗炎治疗无效或病变持续性恶化进展时,应高度怀疑肺炎型肺癌。当经过抗炎或抗结核治疗无明显吸收好转时,应想到肺炎型肺癌的可能。本文中肺炎型肺癌患者以咳嗽咳痰为临床表现,CT及X线表现为斑块阴影或致密影,无毛刺征或不规则阴影等肺癌典型表现,与普通肺炎难以区分,本文中共有26例肺炎型肺癌误诊,最终通过活检以及手术病理得到确诊。实性阴影外沿肺纹理分布的结节及磨玻璃影,是由于癌细胞沿支气管播散而形成,但在抗感染及抗结核治疗中未见明显吸收,这有别于炎症或结核。我们认为当出现以下情况时,临床诊治中应警惕肺炎型肺癌:(1)中老年男性患者胸部X线表现主要为斑片或大片状阴影,有严重吸烟史,为肺癌高危人群,应常规进行痰癌细胞筛查;(2)中老年患者以咳嗽咳痰为主要临床表现,胸部CT可见依据肺段肺叶分布高密度影,部分患者可见“枯枝征”及“血管造影征”等特殊CT征象,经过抗感染或抗结核治疗未见好转,或虽然临床表现有所缓解,但影像学检查提示肺部病变无好转或恶化者;(3)多病灶融合以及肺门或纵隔淋巴结肿大患者应采取组织学检查,警惕肺炎型肺癌;(4)高度怀疑肺癌者,应对CT等影像进行重点分析,及时采取纤支镜检查或支气管肺泡灌洗检查,提高诊断准确率,尽量避免误诊;(5)邻近胸壁病灶可行CT引导下经皮肺穿刺活检术,进行多部位、多方位取材,以提高阳性率,避免漏诊;(6)胸腔积液患者早期进行抽液,查找脱落细胞^[18-20]。

综上所述,将病史、临床表现及影像学表现相结合,动态观察病情变化,有利于提高临床诊断正确率,降低误诊率。

参考文献(References)

- [1] Cantera JE, Alfaro MP, Rafart DC, et al. Inflammatory myofibroblastic tumours: a pictorial review[J]. Insights Imaging, 2014, 18(8): 8-9
- [2] Yip S, Mc Call K, Aristophanous M, et al. Comparison of Texture Features Derived from Static and Respiratory-Gated PET Images in Non-Small Cell Lung Cancer[J]. PLoS One, 2014, 9(12): e115510
- [3] Khorashadi L, Wu CC, Betancourt SL, et al. Idiopathic pulmonary haemosiderosis: spectrum of thoracic imaging findings in the adult patient[J]. Clin Radiol, 2014, 13(1): 6-9
- [4] Iqbal S, Iqbal K, Arif F, et al. Potential lung nodules identification for characterization by variable multistep threshold and shape indices from CT images [J]. Comput Math Methods Med, 2014, 20(14): 241-247
- [5] Gao X, Chu C, Li Y, et al. The method and efficacy of support vector

(下转第 3727 页)

- derive and validate the Qbleed scores[J]. *BMJ*, 2014, 28: 349
- [10] Opene M, Kurantsin-Mills J, Husain S, et al. Sick erythrocytes and platelets augment lung leukotriene synthesis with downregulation of anti-inflammatory proteins: relevance in the pathology of the acute chest syndrome[J]. *Pulm Circ*, 2014, 4(3): 482-495
- [11] Wilhelmsen M, Andersen JF. Severe upper gastrointestinal bleeding in extraluminal diverticula in the third part of the duodenum [J]. *BMJ Case Rep*, 2014, 13: 2014
- [12] Beggs AD, Dilworth MP. A systematic review of transarterial embolization versus emergency surgery in treatment of major nonvariceal upper gastrointestinal bleeding [J]. *Clin Exp Gastroenterol*, 2014, 16(7): 93-104
- [13] Valkhoff VE, Coloma PM. Validation study in four health-care databases: upper gastrointestinal bleeding misclassification affects precision but not magnitude of drug-related upper gastrointestinal bleeding risk [J]. *J Clin Epidemiol*, 2014, 67(8): 921-931
- [14] Wang Q, Ljung R. Prognosis of concomitant users of clopidogrel and proton-pump inhibitors in a high-risk population for upper gastrointestinal bleeding [J]. *BMC Pharmacol Toxicol*, 2014, 15(15): 22
- [15] Peng YC, Chen SW. Comparison the efficacy of intermediate dose argon plasma coagulation versus hemoclip for upper gastrointestinal non-variceal bleeding [J]. *Hepatogastroenterology*, 2013, 60 (128): 2004-2010
- [16] Oka Y, Okamoto K. Meta-analysis of the risk of upper gastrointestinal hemorrhage with combination therapy of selective serotonin reuptake inhibitors and non-steroidal anti-inflammatory drugs[J]. *Biol Pharm Bull*, 2014, 37(6): 947-953
- [17] Chen SZ, Yao HQ, Zhu SZ, et al. Expression levels of matrix metalloproteinase-9 in human gastric carcinoma[J]. *Oncol Lett*, 2015, 9(2): 915-919
- [18] Xie HC, Liu F, Yang Q, et al. Effects of Jiaweisinsan on gastric mucosal ultrastructure and brain-gut axis in a rat model of chronic psychological stress[J]. *Journal of Southern Medical University*, 2015, 35(1): 103-107
- [19] Sinha K, Sadhukhan P, Saha S, et al. Morin protects gastric mucosa from nonsteroidal anti-inflammatory drug, indomethacin induced inflammatory damage and apoptosis by modulating NF- κ B pathway [J]. *Biochim Biophys Acta*, 2015, 1850(4): 769-783
- [20] Lee YY, Noridah N. Absence of *Helicobacter pylori* is not protective against peptic ulcer bleeding in elderly on offending agents: lessons from an exceptionally low prevalence population [J]. *PeerJ*, 2014, 11 (2): e257

(上接第 3723 页)

- machine classifiers based on texture features and multi-resolution histogram from (18)F-FDG PET-CT images for the evaluation of mediastinal lymph nodes in patients with lung cancer[J]. *Eur J Radiol*, 2015, 84(2): 312-317
- [6] Dua MM, Cloyd JM, Haddad F, et al. Cardiac metastases and tumor embolization: A rare sequelae of primary undifferentiated liver sarcoma[J]. *Int J Surg Case Rep*, 2014, 5(12): 927-931
- [7] Emerson T, Kirby M, Bethel K, et al. Fourier-ring descriptor to characterize rare circulating cells from images generated using immunofluorescence microscopy [J]. *Comput Med Imaging Graph*, 2014, 23(9): 62-68
- [8] Chen C, Zhu YH, Qian HY. Pulmonary tuberculosis with false-positive ^{18}F -fluorodeoxyglucose positron emission tomography mimicking recurrent lung cancer: A case report [J]. *Exp Ther Med*, 2015, 9(1): 159-161
- [9] Ermolayev V, Mohajerani P, Ale A, et al. Early recognition of lung cancer by integrin targeted imaging in K-ras mouse model [J]. *Int J Cancer*, 2014, 12(2): 23-25
- [10] Gaikwad A, Souza CA, Inacio JR, et al. Aerogenous metastases: a potential game changer in the diagnosis and management of primarylung adenocarcinoma [J]. *AJR Am J Roentgenol*, 2014, 203 (6): W570-582
- [11] Wan Q, Jiao Q, Li X, et al. Value of (18)F-FDG PET/CT and MRI in diagnosing primary endometrial small cell carcinoma [J]. *Chin J Cancer Res*, 2014, 26(5): 627-631
- [12] Zheng K, Yao Y, Wang Y. PET-CT features of the lung benign lesions misdiagnosed as lung cancer [J]. *Journal of Central South University(Medical Sciences)*, 2014, 39(10): 1039-1044
- [13] Zhao Q, Wei S, Li X, et al. Primary pulmonary lymphoma: a case report[J]. *Chinese Journal of Lung Cancer*, 2014, 17(10): 765-768
- [14] Zhang Z, Mao Y, He J, et al. Exploration of lymph node metastasis and appropriate lymph node dissection modes in patients with clinical stage I non-small cell lung cancer [J]. *Chinese Journal of Oncology*, 2014, 36(7): 536-540
- [15] Halpenny DF, Riely GJ, Hayes S, et al. Are there imaging characteristics associated with lung adenocarcinomas harboring ALK rearrangements[J]. *Lung Cancer*, 2014, 86(2): 190-194
- [16] Martínez-Jiménez S, Rosado-de-Christenson ML, Walker CM, et al. Imaging features of thoracic metastases from gynecologic neoplasms[J]. *Radiographics*, 2014, 34(6): 1742-1754
- [17] Truong MT, Ko JP, Rossi SE, et al. Update in the evaluation of the solitary pulmonary nodule[J]. *Radiographics*, 2014, 34(6): 1658-1679
- [18] Meng XY, Wu SK, Song ST, et al. Clinical manifestations and radiological features may contribute to the early diagnosis of radiation-induced sarcoma after breast cancer [J]. *Clin Radiol*, 2014, 69(12): 1228-1234
- [19] Wang H, Xing F, Su H, et al. Novel image markers for non-small cell lung cancer classification and survival predication [J]. *BMC Bioinformatics*, 2014, 19(15): 310
- [20] Bayanati H, Etern TR, Souza CA, et al. Quantitative CT texture and shape analysis: Can it differentiate benign and malignant mediastinal lymph nodes in patients with primary lung cancer [J]. *Eur Radiol*, 2014, 9(13): 6-9