

AUDT:新型冠状病毒肺炎输入型病例和本地病例CT表现的对比研究

作者：李妮娜等 来源：AUDT

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AUDT:新型冠状病毒肺炎输入型病例和本地病例CT表现的对比研究

编者按：新型冠状病毒肺炎(COVID-19)全世界目前都没有特效药物和疫苗，采用传统的公共卫生策略仍然是控制疫情爆发的有效措施。长沙市第一医院超声影像科谭荣和放射科李妮娜在AUDT杂志发表了篇名《新型冠状病毒肺炎输入型病例和本地病例CT表现的对比研究》的论文，细致的描述新型冠状病毒肺炎的CT表现，以及通过CT表现证明在隔离措施后新型冠状病毒的致病力是否在减弱。本文通过分析隔离措施后，湖南省新冠肺炎输入型病例和本地病例的CT表现差异，间接证明“早发现早隔离”对防控新型冠状病毒肺炎的重要意义。

第一作者简介：



李妮娜，湖南省长沙市第一医院长沙市公共卫生救治中心放射科，副主任医师，硕士。参与省市级课题多项，发表国家核心期刊10多篇，擅长胸部影像学诊断。

中文摘要

目的：描述新型冠状病毒肺炎的CT表现以及通过其CT表现的差异性证明在隔离措施后是否存在新型冠状病毒的致病力减弱。

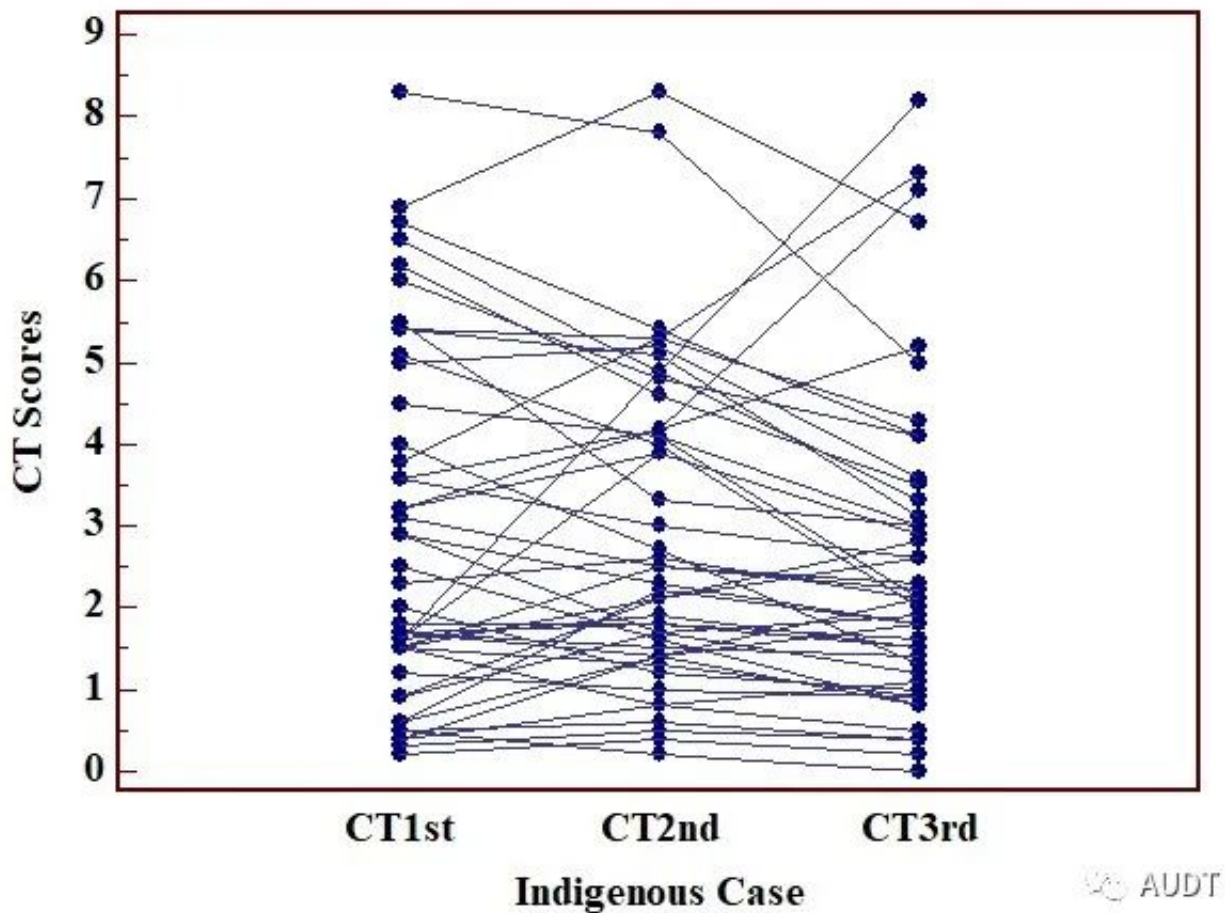
方法：将131例新型冠状病毒肺炎患者根据感染地点分为输入型病例(83例)和本地病例(48例)，通过患者的基本信息，既往史，临床表现，累及肺叶的CT表现和评分进行组间比较。两位影像科

医生根据累及肺段，毛玻璃改变，肺实变以及蜂窝肺进行评分，并将55位入院期间出现CT评分峰值的患者进一步行对比分析。

结果：输入型病例和本地病例患者的基本信息、既往史和临床表现并未有显著性差异;在患者CT曲线评分上，入院第三次评分均低于前两次评分;55位入院期间出现CT评分峰值的新型冠状病毒肺炎患者中，本地病例CT评分峰值低于输入型病例。CT评分峰值截断值2.55用来判别输入型病例还是本地病例的ROC曲线下面积0.714，敏感性为76.3%，特异性为52.9%。输入型病例的CT评分峰值高于本地病例，并且输入型病例肺实变更明显($P<0.05$)。

结论：CT检查不仅能监测新型冠状病毒肺炎病程进展，而且能在一定程度上反映患者的接触史。5天以上的CT检查间隔更有临床价值。由于在同等条件下，本地病例的病程进展要好于输入型病例，故新型冠状病毒在有效的隔离措施下致病力可能会减弱。

关键词：新型冠状病毒肺炎，CT，冠状病毒，致病力



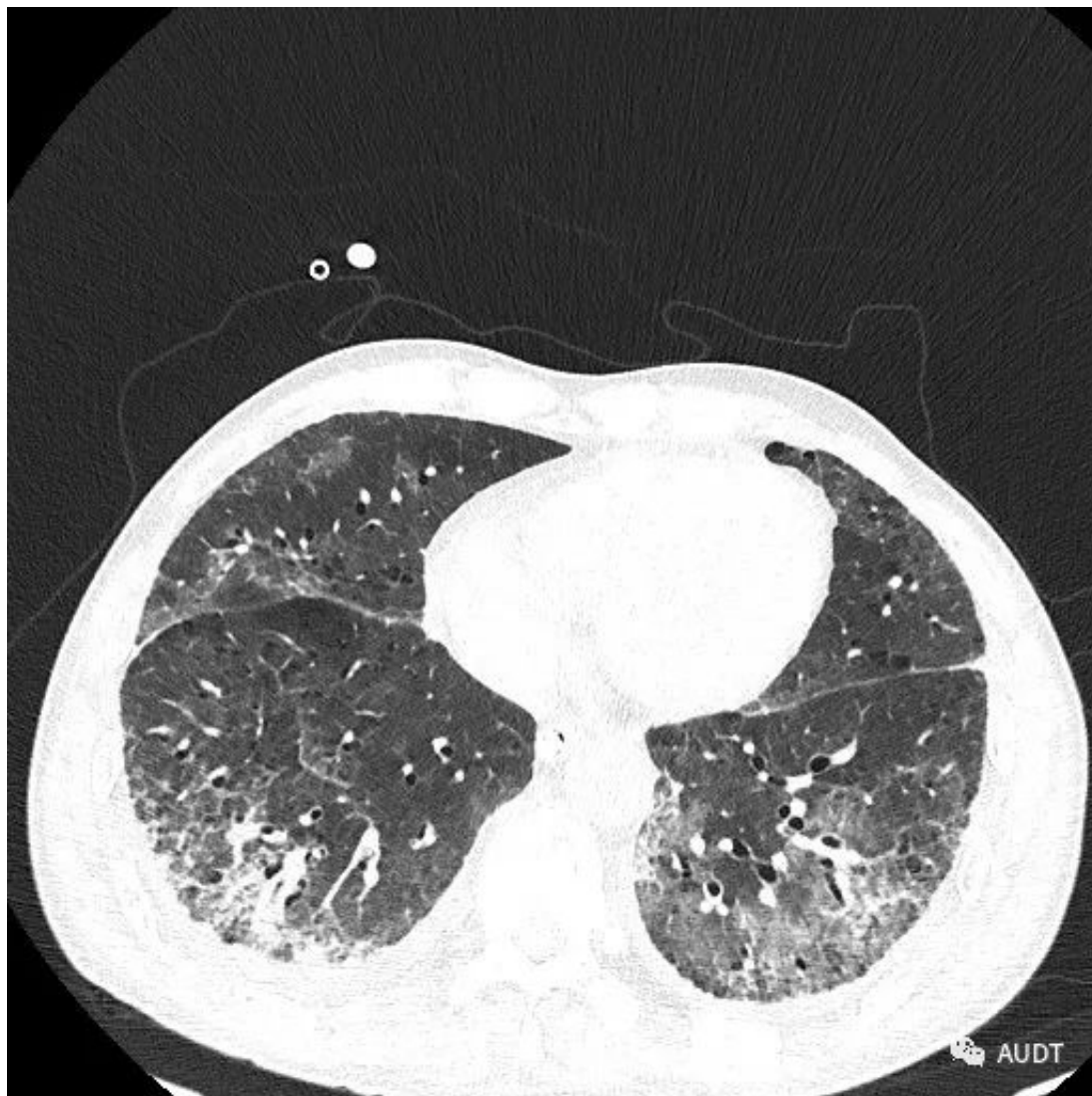


图4.患者男性64岁，近期有武汉旅居史，核酸检测新冠病毒阳性，出现发热症状。CT检查评分10.9分。图像显示双肺下叶胸膜下蜂窝肺改变。此外，还存在多发毛玻璃改变以及夹杂实变影。右侧胸腔少量胸水。因为患者有10年慢性阻塞性肺炎病史，所以存在肺气肿改变。

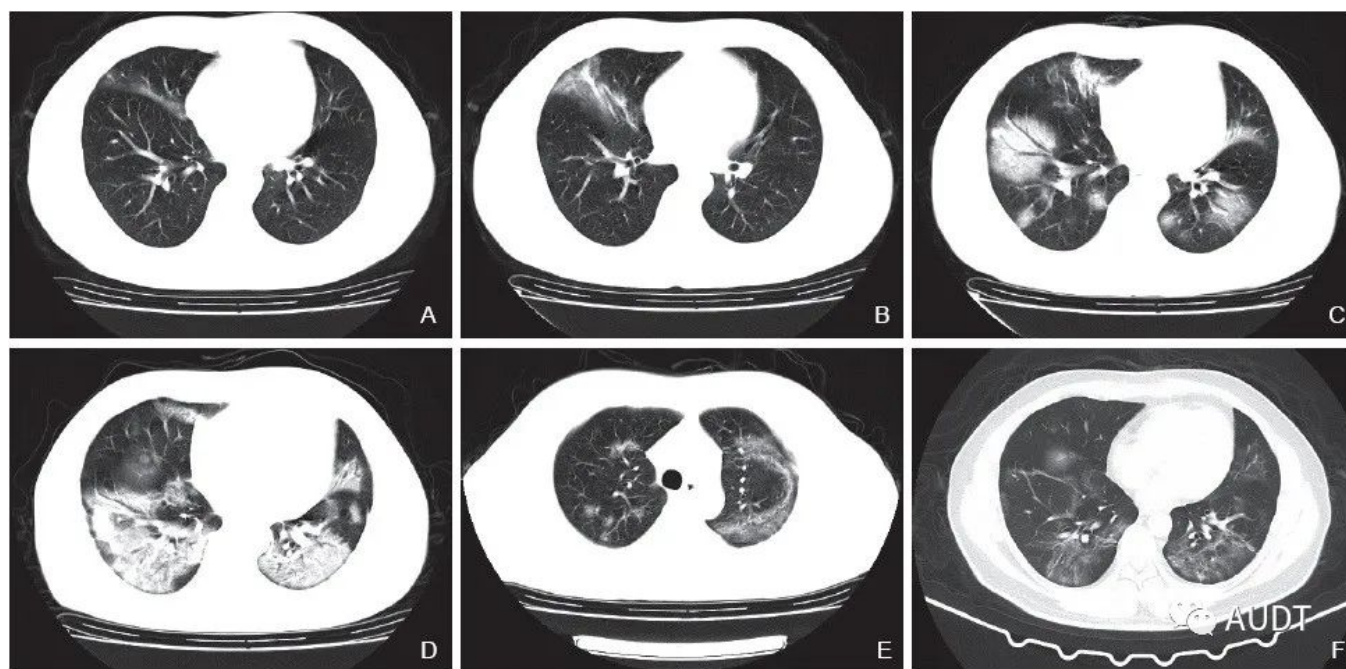


图5. 患者男性36岁，近期无武汉旅居史，与新冠病毒肺炎确诊病例有密切接触史，(a)入院2天后CT扫查，显示右肺中叶胸膜下区域毛玻璃改变;(b)5天后CT显示右肺中叶病变范围扩大密度增高;(c)8天后CT显示明显的双肺下叶片状毛玻璃影;(d)11天后CT显示明显的肺实变和支气管气相;(e)15天后病灶范围缩小并且出现条索影;(f)18天后CT显示病变范围进一步缩小并且开始消散。

本文精要导读：

Comparative Study of CT Characteristics in Imported Cases and Indigenous Cases with COVID-19

Rong Tan, MD ^{a,1,*}, Nina Li, MD ^{b,1}, Ping Liu, MD ^c, Qi Tang, MD ^a, Qizhi Yu, MD ^b

^a Department of Ultrasonography, First Hospital of Changsha; Changsha, Hunan, China; ^b Department of Radiology, Public Health Medical Center in Changsha (affiliated to First Hospital of Changsha); Changsha, Hunan, China; ^c Department of Pneumology, First Hospital of Changsha; Changsha, Hunan, China

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Objective: The aims of the current study were to describe the serial CT characteristics of patients infected with COVID-19. In addition, in the light of the CT findings, we tried to determine whether virulence weakens during the transmission with quarantine management.

Methods: Demographics, comorbidity, clinical findings, CT scanning, and scores of the affected lung parenchyma were compared for 131 patients with abnormality on CT images classified as COVID-19 pneumonia and the patients were divided between an imported group ($n = 83$) and indigenous group ($n = 48$), according to infected location. Two reviewers scored chest CT examinations for segmental involvement, ground glass opacities, consolidation, and honeycombing opacities. The 55 patients with peak CT "severity score" were selected to make a comparative analysis.

Results: Patients' demographics and comorbidities and clinical findings did not differ significantly between the two groups. The CT scores distribution trendline of the third CT scanning was lower than the former CT scanning. The peak CT scores trendline of the 55 selected COVID-19 patients in the indigenous group was lower than the imported group. The ROC analysis revealed an area under curve of 0.714 for the CT scanning with an optimal cutoff scores of 2.55 for prediction of contact history, a sensitivity of 76.3%, and a specificity of 52.9%. The peak CT scores of the imported cases were higher than of the indigenous cases and the lung consolidation predominance on CT findings was remarkable in the imported patients ($P < 0.05$).

Conclusions: CT scanning not only monitored the progression of patients with COVID-19 but also reflected their exposure status to some extent. We suggest that a follow-up CT scanning interval of more than 5 days might be cost effective. The pathogenicity of novel coronavirus may be weakened through transmission under adequate quarantine measures, since indigenous cases have much better progression than imported cases.

Key words: COVID-19; CT; Coronavirus; Pathogenicity

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In December 2019, there was an outbreak of atypical pneumonia in Wuhan, the provincial capital of Hubei in China. The pathogens were identified as SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2) and the disease caused by this SARS-CoV-2 was called COVID-19 by the World Health Organization

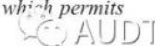
(WHO). The epidemic was soon discovered in more than a dozen countries around the world. WHO declared the epidemic outbreak a Public Health Emergency of International Concern. SARS-CoV-2 is an RNA virus that mutates easily due to unstable-strand replication. The mutations to strengthen or reduce virulence occur

¹ Rong Tan and Nina Li contributed equally to this study.

* Corresponding Author: Department of Ultrasonography in First Hospital of Changsha, Yingpan Road 311, Kaifu District, Changsha, Hunan, 410005, China
e-mail: tongtaijie@163.com

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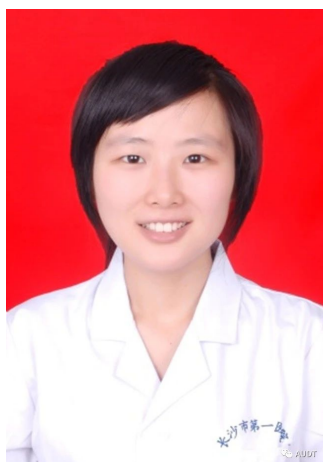
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作者：Rong Tan, Nina Li, Ping Liu, Qi Tang, Qizhi Yu

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通讯作者简介：



谭荣，湖南省长沙市第一医院超声科，主治医师，硕士。中国超声浅表及外周血管委员会青年委员。参与省市级课题多项并发表多篇论文并获奖，其中以第一作者发表SCI论文2篇，国家核心期刊2篇。擅长胸腹部、乳腺、甲状腺浅表小器官超声诊断。

关于本刊 Advanced Ultrasound in Diagnosis and Therapy (AUDT)，即“超声诊断与治疗进展”是一本新的、开放性的英文专业期刊。于2017年11月在美国波士顿正式注册，以网络在线(刊号：ISSN 2576-2516)和印刷版(刊号：ISSN 2576-2508)两种形式面向全球公开发刊，为季刊。

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