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Lung-Base Findings in Covid-19 Positive Patients Presenting with Abdominal Pain

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1. Abstract

The COVID-19 pandemic has altered the traditional work patterns in medical facilities. Unfortunately, these patients may present with atypical abdominal symptoms which cause them to be stratified as low risk and not be provided PPE. We present a series of 9 patients who presented to the emergency room or outpatient center with various abdominal findings but lacked typical pulmonary findings to trigger the provider to suspect Covid-19. All patients were found to have pathological findings in their lung bases on abdomen and pelvis CT. The findings consisted of peripheral ovoid ground glass opacities, diffused ground glass opacities, small bilateral pleural effusions, and bibasilar consolidations. All patients were eventually diagnosed as Covid-19 positive. Since Covid-19 patients can present with isolated abdominal findings, all patients with such symptoms presenting to the emergency room should be likely treated as potentially COVID-19 positive in the present pandemic. PPE should always be provided to the patients and staff to reduce further unnecessary exposure.

Summary Sentence - Since Covid-19 patients can present with isolated abdominal findings, all patients with such symptoms presenting to the emergency room should be likely treated as potential PUI in the present pandemic and PPE should be provided.

2. Introduction

The Covid-19 epidemic has had a tremendous impact on both the hospital and outpatient logistics. Most hospital and outpatient centers are choosing to mask suspected and Covid-19 patients and image such patients portably whenever possible. These Covid-19 positive patients and patients under investigation (PUI) are identified in order to reduce potential exposure by the utilization of personal protective equipment (PPE). The typical pulmonary and constitutional symptoms of COVID-19 include a sore throat, headache, dry cough, fevers, and body aches [1-3] Unfortunately, Covid-19 patients can present with unusual abdominal findings instead of presenting with the traditional pulmonary and constitutional symptoms [4,5]. We present a series of 9 patients who presented to the emergency room or outpatient center with various abdominal findings, but they lacked typical pulmonary findings or other exposure history to cause the provider to suspect Covid-19. Therefore, the patients received abdominal imaging to rule out intra-abdominal pathology.

3. Method

A retrospective review of 9 patients from March of 2020 who presented to the emergency room with various abdominal symptoms including abdominal pain, flank pain, nausea, vomiting, and diarrhea. Medical records, laboratory results, and physical examination findings were reviewed. All patients received an abdomen and pelvis CT exam on a 64 slice scanner to assess the abdominal complaints. They were imaged using standard abdomen-pelvis protocols from the lung bases to the symphysis pubis. Seven were done without the performance of contrast and two with contrast. The series of patients all had lung base findings and subsequently tested positive for COVID-19.

4. Results

A CT scan of the abdomen and pelvis was performed on all 9 patients. Two patients presented with flank pain, six presented with abdominal pain, five with nausea, three with vomiting, and two with diarrhea. All patients lacked any inter-abdominal pathology. None of the patients presented with pulmonary symptoms. The average age of the patients was 54 years of age, ranging from 19 to 79 years of age. The patients comprised of seven females and two males. Lung-based findings consisted of four patients with peripheral ovoid ground glass opacities (Figure 1 and 2), four patients with diffused ground glass opacities (Figure 3), one patient with small bilateral pleural effusions, and one patient with bibasilar consolidations. Incidentally noted was sodium levels that were below normal or at the lower end of normal. The mean sodium of this cohort was unusual at 136. Also incidentally noted was that the white blood cell count in the cohort was low except for one patient. Seven patients had white blood cell counts below 5.5. The SpO2 in this data set was 96% and above on room air, likely attributed to the lack of pulmonary symptoms which appeared within this cohort. The patients also lacked an elevation in temperatures when tested, even though four patients stated they had fevers. It is unclear by the history if the patients received antipyretic before presentation.

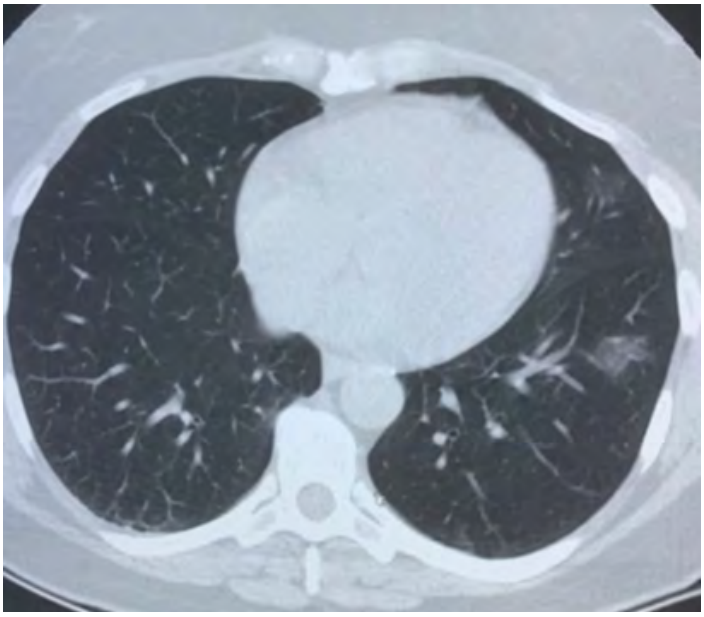

Figure 1 and 2: Peripheral Ovoid ground glass opacities with sub-plural sparing which is highly suspicious of Covid-19.

Figure 3- Diffused ground glass opacities throughout the lung bases.

5. Discussion

The Covid-19 pandemic has had dramatic worldwide social, economic, and political effects. Locally the present pandemic has had a dramatic impact on the management of emergency room and office visits. The severe infectious nature of this pathogen has altered the typical treatment and patient flow paradigms that were in place pre-Covid-19 [6]. The present models to reduce other patient, emergency room staff, physician, and technologist are predicated on the premise of stratifying patients as potential Covid-19 carriers versus low-risk individuals. The models are in place to reduce the utilization of PPE and workflow adjustments needed in handling such individuals. The allocation of the patients' risk is predominantly based upon the traditional pulmonary symptoms. Therefore, patients lacking these conventional pulmonary symptoms are stratified as low risk. Patients who present outside the typical pulmonary/constitutional findings may not receive necessary personal protective equipment due to their low risk classification [7]. Due to potential exposure risks, whether this is from patient-to-patient or patient-to-provider, this is extremely problematic. In addition, a covid-19 positive patient who receives a CT exam without the use of personal protective equipment triggers terminal cleaning of the CT room. This potentially impacts on throughput of the CT scanner due to the significant time needed to cleanse the equipment and room along with air filtration. Therefore, it is critical to correctly identify Covid-19 positive or PUI patients early in such a setting. We analyzed a series of eventual Covid-19 patients who presented to our emergency room without any pulmonary symptoms and therefore were stratified as low-risk/no-risk of Covid-19. The examining physician had no reason to believe they could be potentially Covid-19 positive. Due to their abdominal symptoms these patients were imaged using standard abdomen-pelvis protocols, which included imaging of the lung bases. This series of patients were all found to have abnormal findings in the lung bases and no findings in the abdomen pelvis to explain the abdominal pain. Therefore, the abdominal pain was likely being referred from the lung base findings. All patients were eventually diagnosed as Covid-19 positive. Considering this, there was potential exposure risk to patients and health care providers due to being classified as low risk. This has led to a policy change in the facility to mask all patients presenting with abdominal pain in the current pandemic due to the fact they are categorized as a PUI.

6. Take Home Points

•Since Covid-19 patients can present with isolated abdominal findings, all patients with such symptoms presenting to the emergency room should be likely treated as potential PUI in the present pandemic.

•PPE should always be provided to the patient and staff to reduce further unnecessary exposure.

•Covid-19 patients who present with abdominal pain and are otherwise asymptomatic most often demonstrate peripheral avoid ground glass and diffused ground glass opacities.

References

1. Li Q, Guan X, Wu P, Wang X, Zhou L, Tong Y, et al. Early Transmission Dynamics in Wuhan, China, of Novel Coronavirus-Infected Pneumonia. N. Engl. J. Med. 2020.
2. Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. Lancet. 2020; 395(10223): 497-506.
3. Wu Z, McGoogan JM. Characteristics of and Important Lessons from the Coronavirus Disease 2019 (COVID-19) Outbreak in China: Summary of a Report of 72 314 Cases from the Chinese Center for Disease Control and Prevention. JAMA. 2020.
4. Tian Y, Rong L, Nian W, He Y. Review article: gastrointestinal features in COVID-19 and the possibility of faecal transmission. Aliment Pharmacol Ther. 2020.
5. Wong SH, Lui RN, Sung JJ. Covid-19 and the Digestive System. J Gastroenterol Hepatol. 2020.
6. Cao Y, Li Q, Chen J, Guo X, Miao C, Yang H, et al. Hospital Emergency Management Plan During the COVID-19 Epidemic. Acad Emerg Med. 2020.
7. Mitchell R, Banks C. Emergency departments and the COVID-19 pandemic: making the most of limited resources. Emerg Med J. 2020.