

## Case Report

# Acute parotitis associated with COVID-19 - an unusual presentation: a report from Bangladesh perspective

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## ABSTRACT

COVID-19 affects different peoples in many unusual ways. An increasing number of atypical presentations of COVID-19 have already been reported worldwide. So, in this pandemic period, any unusual presentation of the patients, should keep in mind about the association of coronavirus disease 2019. Hence, it is very important to diagnose the case without any delay to make immediate intervention as well as to prevent the disease transmission among the health care workers and in the community. We report a case of a 62 years old male presented in the outpatient department with COVID-19 associated acute parotitis, later developed bilateral pneumonia. Though COVID-19 still is a mysterious disease, but presentation with acute parotitis is very atypical which made the case interesting. In this case, we want to explore the importance of unusual presentation associated with COVID-19, emphasize to keep COVID-19 as a differential of acute parotitis at any age, to alert all health care workers to handle any patients with personal protective equipment to prevent transmission and probably this is the first case of COVID-19 presented with acute parotitis in Bangladesh.

**Keywords:** COVID-19, Acute parotitis, Severe acute respiratory syndrome coronavirus 2, Bangladesh

## INTRODUCTION

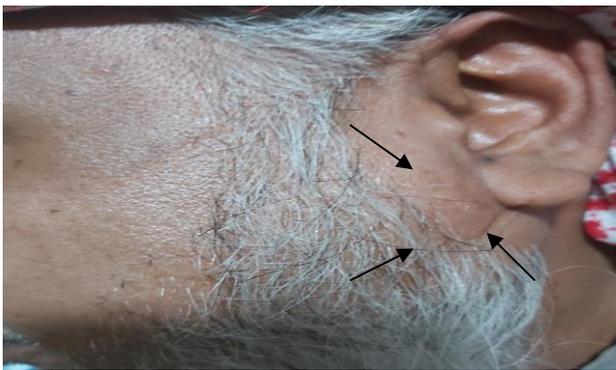
Coronavirus disease (COVID-19) caused by a primary infection of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).<sup>1</sup> It is a highly contagious disease that spreads by a human to human transmission. The majority of the infections are mild, presenting with a flu-like illness, fever (98%), cough (76%), myalgia and fatigue (18% of each), less commonly diarrhoea, sore throat, loss of smell and taste sensation. Among them, about 16% to 20% of cases have been classified as severe or critical.<sup>2</sup> Gradually, there is an increasing number of cases, and clinicians observing the emergence of new and unusual presentations, complications, and sequel of the disease.<sup>3</sup> An increasing number of unusual systemic non-respiratory related presentations involving cardiovascular, neurological, gastrointestinal, and dermatological

systems have also been documented.<sup>4</sup> However, some recent evidence suggested a possible causal relationship between COVID-19 and salivary gland disease.<sup>5</sup> As coronavirus can be detected in the saliva even before lungs and nasopharyngeal lesions appear, this could suggest that the salivary glands (parotid inclusive) may be potential targets for the virus much earlier in the disease.<sup>6</sup> Inflammation of the parotid salivary glands referred to as parotitis and the classical presentation of viral parotitis is bilateral involvement while bacterial parotitis usually presented unilateral.<sup>7</sup>

We report a case of 62 years old male diabetic person presented with low-grade intermittent fever initially then developed high grade continued fever with left-sided parotid glands swelling (parotitis) and diagnosed with COVID-19.

## CASE REPORT

A 62 years old male diabetic person presented to the outpatient department with complaints of low-grade intermittent fever with flu-like symptoms and of left sided facial and neck swelling for 2 days. He had complaints of dry cough, sore throat, and malaise prior to this illness. No other abnormalities like diarrhoea, abdominal pain, dental pain, facial weakness was detected. On examination, the patient had normal vital signs and moderate left-sided cheek, preauricular, and submandibular swelling with mild redness, but no induration, fluctuance, or any discharge from the duct (Figure 1). Initially, it was thought to be infectious parotitis, sialolithiasis, salivary abscess, or malignancy. The rest of his physical examinations were unremarkable. Routine investigations along with a nasopharyngeal swab of real time-polymerase chain reaction (RT-PCR) were advised for COVID-19 as he gave a history of contact with a COVID-19 patient at his home. However, laboratory values were notable for leucopenia, increased erythrocyte sedimentation rate (ESR), and significantly raised Serum amylase which indicated viral parotitis.

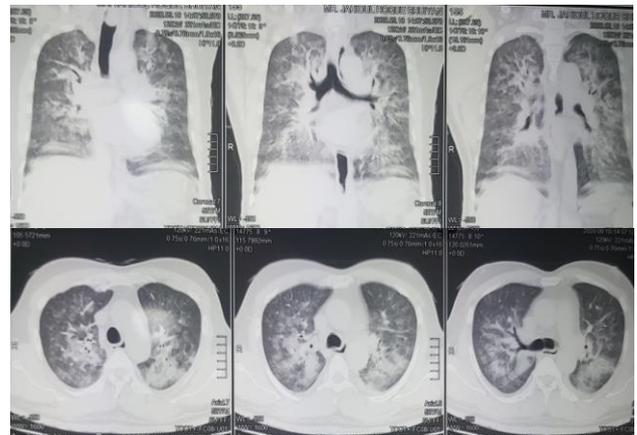


**Figure 1: Swelling in the left side of the cheek involving preauricular (black arrows) and submandibular region with mild erythema, but there is no induration, fluctuance or any discharge from duct.**

His details laboratory investigations revealed hemoglobin (Hb%) 14.6 gm/dl, ESR 76 mm in 1st hour, total white blood cell count (WBC) 4100/cumm (normal 4000-11,000/cumm) with differentials of neutrophils 65% (normal 50-70%), lymphocytes 18% (normal 20-30%) and platelets count 178,000/cumm (normal 150,000-400,000), random blood sugar 16.7 mmol/l (normal <7.8 mmol/l), serum creatinine 1.1 mg/dl (normal range 0.8-1.2 mg/dl), serum amylase 490 U/l (normal up to 90 U/l), C-reactive protein (CRP) was 108 mg/l (normal <8 mg/l), serum ferritin 348 ng/ml (normal range 45-125 mg/ml), serum lactate dehydrogenase (LDH) 420 U/l (normal 120-220 U/l), alanine aminotransferase (ALT) 56 U/l (normal range 10-65 U/l), D-dimer 0.78 mg/l (normal <0.50 mg/l), serum procalcitonin <0.05 ng/ml (normal up to 0.49 ng/ml), blood culture showed no growth. His chest X-ray posterior anterior view was normal and X-ray of the neck in lateral

view showing diffuse soft tissue swelling in the left side without an obstructing stone. Serological tests for paramyxovirus, cytomegalovirus, coxsackie, or Epstein Barr virus were not done due to the unavailability of facilities. Computed tomography of the neck was also not done due to the unavailability of facility. The patient was prescribed with paracetamol, an oral antibiotic for possible bacterial infection, antihistamine and advised to apply warm compresses, massage the gland, and stay hydrated.

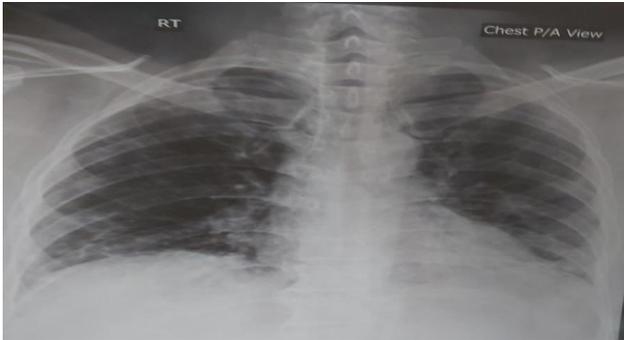
However, on the following day, his nasopharyngeal swab of RT-PCR for COVID-19 came positive and started thromboprophylaxis oral antiviral drugs along with his anti-diabetic medication and advised for strict home isolation. After 3 days, he again attended the emergency department with complaints of high-grade fever continued in nature for the last 2 days and increasing cough, respiratory distress on exertion. On examination, his left-sided swelling was increased in size rather than decreased. His lung examination revealed scattered bilateral coarse crackles and his oxygen saturation was 96% on room air. After that, he was advised for an emergency high resolution computed tomography of the chest (HRCT of the chest). HRCT of chest findings showed multifocal ground glass density areas intermixed with irregular increased attenuated areas, and consolidations were seen at multiple segments of both lungs, predominantly distributed at peripheral, peri bronchial and subpleural regions, more marked at both upper and apical segment of both lower lungs (Figure 2a and b). Then the patient was admitted and started with intravenous steroid, intravenous antiviral, subcutaneous low molecular weight heparin, along with intravenous antibiotic for possible co-infection.



**Figure 2: Chest CT showing multifocal ground glass density areas intermixed with irregular increased attenuated areas and consolidations are seen at multiple segments of both lungs, predominantly distributed at peripheral, peri bronchial and subpleural regions, more marked at both upper and apical segment of both lower lungs.**

Gradually, he was improved. His temperature was subsided, oxygen saturation was normal in room air, left-sided swelling and cough reduced. He was discharged after

7 days with the advice of strict home isolation for 14 days. After 14 days, his oropharyngeal swab was taken again and showed negative results. His follow-up investigations also came satisfactory with radiological improvement in chest X-ray (Figure 3).



**Figure 3: Showing little bilateral ill-defined opacity of the both lungs as radiological improvement lagged behind the clinical improvement.**

## DISCUSSION

A variety of microorganisms can cause salivary gland infections and the parotid gland is most commonly affected.<sup>7,8</sup> Though paramyxovirus is the classic cause of viral parotitis, other respiratory viruses can lead to non-mumps parotitis, including enteroviruses and influenza, parainfluenza, coxsackie, and Epstein-Barr viruses.<sup>7,9</sup> Typically, viral parotitis is characterized by a prodrome of flu-like symptoms followed 2–4 days later by gradual swelling of the bilateral parotid glands, though unilateral involvement is seen in up to 25% of cases.<sup>7,9</sup> Currently, the incidence of mumps has decreased due to vaccination. Therefore, we did not advice investigations to exclude mumps due to advance age of our patient and no history of contact with similar patient recently. But we recommend to exclude other infectious agent commonly associated with parotitis like mumps, orthomyxovirus, paramyxovirus, cytomegalovirus, rubella, influenza, coxsackie, Epstein–Barr viruses. It will be more accurate if we could do RT-PCR testing for salivary samples to confirm it. Salivary sample has been frequently confirmed that SARS-CoV-2 is predominantly present in saliva due to the high expression of Angiotensin-converting enzyme 2 receptor in the epithelial lining of the salivary glands and cellular viral entry.<sup>10</sup> A study demonstrated a high yield (91.7%) of positive COVID-19 results in patients' saliva with most of the samples also culturing the live virus.<sup>11</sup> This finding strongly suggest that salivary gland is a possible target for SARS-CoV-2 infection.

Till now, there are few case reports about the atypical presentation of parotid gland swelling in the setting of PCR confirmed COVID-19 infection have been documented in France (3 cases), USA (1 case), and Italy (1 case), respectively.<sup>12</sup> All cases were adult patients presented with a unilateral parotid gland swelling and do not associated with discharge. These cases were similar to our case.

Nonetheless, at the time we evaluated this patient, there were no reports of COVID-19 associated parotitis in Bangladesh. Hence, this case report will add to an expanding literature of atypical presentations of COVID-19 especially in Bangladesh perspectives.

COVID-19 infection presented with parotitis may be more frequent in the pandemic situation. Therefore, physicians should be more aware about this to diagnose accurately, to treat the patient, to be prepared about any complications, to isolate the patient to prevent spreading of infection. Additionally, the result of the SARS-CoV-2 RNA test more likely depends on the viral load of the specimen, so that there are chances of false negatives results.<sup>13</sup> Therefore, the screening mechanism should be trustworthy so that the infected individuals could be detected early and isolated within a short time. Furthermore, awareness program campaign towards COVID-19 as well as its atypical presentations at the community level, at the educational institutions through social media involvement can be organized.<sup>14</sup>

## CONCLUSION

Atypical presentations of COVID-19 are being increasingly recognized and the parotid gland may be a potential source of SARS-CoV-2. It may be a potential source of infection if not handled with care and personal protection. The patient may be asymptomatic or symptomatic with the development of acute parotitis. Further research on the pathological changes and the relationship between SARS-CoV-2 and parotid enlargement is needed.

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