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CLINICAL INFORMATION

Bilateral parotitis in a patient under continuous positive airway pressure treatment

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Abstract
Background and objectives: many conditions such as bacterial and viral infectious diseases, mechanical obstruction due to air and calculi and drugs can cause parotitis. We present a case of unusual bilateral parotitis in a patient under non-invasive continuous positive airway pressure (CPAP) therapy for chronic obstructive pulmonary disease exacerbation in intensive care unit.
Case report: a 36-year-old patient was admitted to intensive care unit with the diagnosis of chronic obstructive pulmonary disease exacerbation. Antibiotherapy, bronchodilator therapy and non-invasive positive pressure ventilation were applied as treatment regimen. Painless swellings developed on the 3rd day of admission on the right and a day after this on the left parotid glands. Amylase levels were increased and ultrasonographic evaluation revealed bilateral parotitis. No intervention was made and the therapy was continued. The patient was discharged on the 6th day with clinical improvement and regression of parotid swellings without any complications.
Conclusions: parotitis may have occurred after retrograde air flow in the Stensen duct during CPAP application. After the exclusion of possible viral and bacteriological etiologies and possible drug reactions we can focus on this diagnosis.
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Introduction

Parotitis is one of the most commonly encountered conditions among non-neoplastic disorders of the salivary glands.[1] Mumps, other viral and bacterial infections, duct calculi, Sjögren's disease, and drug reactions can be listed as reasons for acute parotitis.[2] One of the most common reasons of drug induced parotitis is the use of iodine and iodine containing drugs as contrast agents. Parotitis formed due to iodine is named as ''iodine mumps''.[3,4] Many other drugs other than iodine can form parotitis as well. Among these drugs are phenylbutazone, oxyphenbutazone; chlormethiazole, methimazole; epinephrine; naproxen; phenothiazine antipsychotics as promazine and thioridazine; clozapine; organophosphate insecticides; l-asparaginase, cytarabine; H-2 blockers such as famotidine, cimetidine, ranitidine; interferon alfa; trimipramine; methyldopa; nifedipine, nicardipine; isoproterenol; ritodrine; ACE inhibitors as captopril, ramipril, enalapril; antibiotics such as cefuroxime, doxycycline, minocycline, nitrofurantoin, sulfadiazine,and trimethoprim sulfametoxazole.[5,6]

We present a case of bilateral parotitis in a patient under non-invasive CPAP therapy for chronic obstructive pulmonary disease (COPD) exacerbation in intensive care unit.

Case report

A 36-year-old patient with congenital bronchiectasis was admitted to intensive care unit with the diagnosis of COPD. Antibiotherapy, bronchodilator therapy and non-invasive positive pressure ventilation were applied as treatment regimen. Painless swellings developed on the 3rd day of admission on the right and a day after this on the left parotid glands. Ultrasonographic (USG) evaluation revealed parotitis. Blood amylase levels were 197 and 3010 U/L respectively on the 2nd and 4th days of gland swelling. Mumps ELISA revealed IgM(−) and IgG(+). The patient's drug therapy consisted of ranitidine 1×50 mg iv, sulbactam ampicillin 4×1 g iv, clarithromycin 2×500 mg iv, acetylcysteine 2×600 mg iv, methylprednisolone 2×40 mg iv, ipratropium bromide 4×0.5 mg inh, salbutamol 4×2.5 mg inh, and budesonide 2×0.25 mg inh. The patient was discharged on the 6th day with clinical improvement and regression of parotid swellings without any complications. After 10 days the patient had polyclinic control, where the blood amylase level was measured as 125 U/L and the parotid USG was reported as mild parotitis bilaterally. COPD drug treatment was regulated and the patient was sent home with suggestions.

Discussion

The etiological mechanisms of parotitis comprise mechanical trauma, infection, hypersensitivity reactions, obstruction of parotid ducts with calculi, air and thickened secretions, parasympathetic stimulation, muscle relaxation, and drug reactions (type A and type B).[7,8] Our patient had some of these risk factors. With ranitidine, which the patient was using, there had been reports of drug induced parotitis.[9,10] Such patients had resulted in recovery with discontinuation of the drug, whereas our patient used the drug throughout the hospital stay. Despite this, the patient recovered spontaneously. Moreover, the patient had no findings such as fever, rush or eosinophilia that would have guided us to adverse drug reaction. Modified Naranjo Probability Scale can be used to establish the diagnosis of drug induced parotitis.[6]

Besides this, increased oral cavity pressure due to positive airway pressure application as a treatment regimen may have caused retrograde air movement in the Stensen duct and obstruction, and this may have resulted in parotitis. Akcaboy et al. and Baykal et al. blamed retrograde air flow into the parotid gland and intraoral pressure rise in the development of postoperative parotitis.[11,12] The condition associated with inflammation of the parotid gland due to retrograde air flow in the parotid ducts is named as pneumoparotitis. This condition is characterized with painless swelling and crepitations.[13,14] The reasons can be listed as habit of cheek inflation, cough attacks in asthma exacerbation, straining and coughing during anesthesia, conditions with increased intraoral pressure, dental instrumentations, balloon inflation, and wind instrument use.[14] Our patient had intermittent positive airway pressure application as treatment regimen. This may have been associated with pneumoparotitis due to increased intraoral cavity pressure. Both the parotid glands of the patient had painless swellings, but no crepitation was determined. Ultrasonographic evaluation revealed no findings of air, but detailed examination to determine the presence of air was not performed. Computed tomography would have demonstrated more clear results.

Unilateral parotitis is generally due to duct obstruction, whereas bilateral parotitis is more commonly attributed to a systemic disease.[15] We suggested Stensen duct obstruction with air, rather than a systemic disease as the probable etiological factor in our patient. Bilateral parotitis formed as a result of duct obstruction is a rather uncommon situation. Moreover, there is no report of parotitis after CPAP in the literature.

We have not investigated viral and bacteriological reasons for parotitis other than mumps in our patient. These factors should have been considered as well.

Parotitis can occur after retrograde air flow in the Stensen duct during CPAP application. After the exclusion of other possible viral and bacteriological etiologies in addition to the measurement of mumps antibodies and possible drug reactions, we can focus on this diagnosis.

Conflicts of interest

The authors declare no conflicts of interest.

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