Case Report on Pneumoparotitis
Laura K. House, MS1; Tara L. Rosenberg, MD2; Andrea F. Lewis, MD1
Department of Otolaryngology and Communicative Sciences
1University of Mississippi Medical Center; Jackson, Mississippi
2University of Arkansas for Medical Sciences; Arkansas Children’s Hospital; Little Rock, Arkansas

ABSTRACT
Educational Objective: At the conclusion of this presentation, participants should be able to understand the etiology, clinical presentation, appropriate diagnostic tests, and treatment of pneumoparotitis with subcutaneous emphysema.

Objectives: To review a case of pneumoparotitis and compare it with other reported cases in the literature.

Study Design: Case report and literature review.

Methods: The case of a 34-year-old inmate with bipolar disorder presenting with recurrent subcutaneous emphysema of the head and neck is reviewed. The patient’s pertinent history, clinical findings and imaging studies are examined.

Results: The patient had a recurrent history of subcutaneous emphysema involving the head and neck. He was afebrile, in no distress, and without dysphagia. Stenson’s duct demonstrated purulent discharge bilaterally. Physical examination revealed crepitus of the head and neck, greater on the left. He was unable to open his left eye. He refused direct laryngoscopy (DL) and esophagoscopy. Fiberoptic laryngoscopy and barium esophagram were normal. Computed tomography (CT) of the neck demonstrated significant left pneumoparotitis and subcutaneous emphysema involving the orbit and subcutaneous areas from the scalp to the clavicles.

Conclusions: Pneumoparotitis is most frequently observed in pediatric and psychiatric populations. It has been reported in wind instrumentalists, divers, and balloon blowers of the adult population. Pneumoparotitis is usually caused by repeated retrograde movement of air via Stenson’s duct into the parotid gland. This is an unusual presentation of pneumoparotitis and malingering. This patient had incentive to recreate his subcutaneous emphysema, as this allowed him to leave prison temporarily.

INTRODUCTION
The term “pneumoparotid” is defined as the presence of air within parotid acini and ducts. Pneumoparotid with associated infection describes pneumoparotitis, a rare pathology of the parotid gland. Pneumoparotitis is caused by retrograde introduction of microbes into the parotid gland via traumatic trauma to the gland. Due to abundant oral flora, it is rare to have pneumoparotid without pneumoparotitis. Intraoral pressure is associated with pneumoparotitis. Because it often presents as edema and local pain in the parotid area, pneumoparotitis is often misdiagnosed as parotitis. This is more commonly seen in wind instrumentalists and adolescents with psychological issues. Diagnosing pneumoparotitis becomes challenging when patients cannot voluntarily insufflate the parotid gland. Treatment is dependent upon severity and length of disease and ranges from supportive measures to surgery.

METHODS
The case of an adult patient with recurrent subcutaneous emphysema of the head and neck is reviewed. The patient’s pertinent history, clinical findings, and imaging studies are examined.

CASE PRESENTATION
The patient is a 34-year-old prison inmate with bipolar disorder who presented with recurrent sensations of a “pop” in the neck region associated with bilateral facial swelling and crepitus of the face and neck.

RESULTS
Physical exam revealed edema with crepitus throughout the face and neck bilaterally. CT of the neck showed subcutaneous emphysema of the bilateral facial and neck regions from the level of the sternal notch to the scalp. Against medical advice, the patient refused intubation, DL, and esophagoscopy. Flexible laryngoscopy was performed, and was normal. Barium swallow demonstrated no perforation. Chest x-ray showed no evidence of pneumothorax. The patient received IV antibiotics and morphine for pain control. He was discharged with oral antibiotics following a decrease in facial/periorbital edema, crepitus, and white blood cell count. The patient subsequently presented twice more to the emergency room with similar presentations. His multiple similar presentations, CT findings, and opportunity to leave prison all support the diagnosis of self-inflicted pneumoparotitis. After receiving antibiotics, the patient was discharged and encouraged to use warm compresses, sialagogues, massage, and aggressive hydration.

DISCUSSION
Swollen parotid glands can be attributed to infection, autoimmune disease, endocrine disorders, and duct obstruction. Pneumoparotitis represents a rare cause of parotid gland swelling due to retrograde airflow through Stenson’s duct. Self-inflicted pneumoparotitis has classically been described in psychiatric patients and adolescents. Presentation commonly involves gland enlargement and crepitus. Frothy saliva or purulence may be expressed from Stenson’s ducts. In more severe or long lasting cases, air may extend into the face and neck causing subcutaneous emphysema. The gold standard for diagnosing pneumoparotitis is CT, which is useful for differentiating air from calculi and inflammation. Treatment can range from conservative techniques to surgical intervention. In minor cases, anti-inflammatory agents, parotid stimulation, and antibiotics are recommended. Parotidectomy is usually reserved for recurrent cases.

The current case demonstrates some of the common presenting signs, such as purulence from Stenson’s duct and facial and periorbital edema. The case is unique in that the patient’s pneumoparotitis is recurrent and severe. This represents a distinctive case of malingering, in which the secondary gain for recreating his illness involved leaving prison and receiving medications, such as narcotics.

CONCLUSIONS
Pneumoparotitis represents a rare cause of parotid pain and swelling and is often misdiagnosed. Retrograde movement of air into the parotid duct system accounts for the pathology involved. CT demonstrates air in the parotid ducts and acini. Subcutaneous emphysema may result from this condition, presenting with facial edema and palpable crepitus.

REFERENCES