

## PAROTITIS IN NEUROINTENSIVE CARE UNIT: CASE REPORT AND REVIEW OF THE LITERATURE

### Case Report

## NÖRO-YOĞUN BAKIMDA PAROTİT: VAKA SUNUMU VE LİTERATÜRÜN GÖZDEN GEÇİRİLMESİ

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### ABSTRACT

The etiology of parotitis is unclear, but some possible causes such as obstruction of glandular excretory ducts caused by patient' or endotracheal tube position and increase in the viscosity of the saliva because of acute dehydration and/or medications like morphine, atropin have been proposed. In this study, we present a case of acute parotitis in a 21-year-old girl in neuro-intensive care unit 5 hours later the extubation following supratentorial craniotomy under general anesthesia.

**Key-words:** Parotitis; intensive care unit; anesthesia.

### ÖZET

Parotit etyolojisi açık değildir, ancak hasta ya da endotrakeal tüp pozisyonuna bağlı olarak parotis glandının tıkanması, akut dehidratasyon ve/veya morfin ve atropine gibi ilaçlara bağlı olarak tükürük sekresyonunun viskozitesinin artmasına bağlı olarak gelişebilir.

Bu çalışmada; genel anestezi altında supratentorial kraniyotomi operasyonunu geçiren 21 yaşında kadın hastada operasyondan 5 saat sonra, nöro yoğun bakımda gelişen akut parotit olgusu sunulmuştur.

**Anahtar kelimeler:** Parotit; yoğun bakım; anestezi.

## INTRODUCTION

Parotitis is a little known entity related with anesthesia or intensive care procedures. Its pathophysiological mechanism is not defined, although it could have a multifactorial. This clinical problem can be seen within the two weeks postoperatively. In intensive care units, the patients are vulnerable to the risk of parotitis, especially patients with poor condition, and long-lasting period for endotracheal intubation, or manipulation to the oral cavity such as tracheostomy. The etiology is not clear, but some possible causes such as obstruction of glandular excretory ducts caused by patient position and increase in the viscosity of the saliva because of acute dehydration and/or medications like atropine have been proposed. It is a bacterial gland infection that occurs from a few days up to some weeks. While it can be both unilateral and bilateral, it is almost always painless and it resolves spontaneously over a period of hours or days, without leaving any sequela.

In this study, we present a case of acute parotitis in a 21-year-old girl in neuro-intensive care unit 5 hours later the extubation following supratentorial craniotomy under general anesthesia.

## CASE REPORT

A 21-year-old, 68 kg female patient, with American Society of Anesthesiologists (ASA) physical status class I was scheduled for supratentorial craniotomy under general anesthesia. Her medical history and preoperative examination revealed no specific findings. On the day of the surgery, patients were transferred to the operating room following premedication with iv midazolam (2 mg) using by the pulse oxymeter monitoring. In the operating room, 5 lead electrocardiography, invasive and non-invasive blood pressure measurements, SpO<sub>2</sub> and end-tidal CO<sub>2</sub> were monitored. General anesthesia was induced with tiyopental 4-6 mg/kg and cis-atracurium

0.15 mg/kg, fentanyl 1 mcg/kg intravenously. Anesthesia was maintained with iv remifentanyl (0.1-0.25 µg/kg/min) and propofol (75-200 µg/kg/min) infusions. The trachea was intubated and mechanical ventilation was started (oxygen/air; oxygen 50%). Additional cisatracurium was titrated to the patient's train-of-four ratio. During the operation, fluid replacement was maintained by crystalloid and colloids and monitored with 0.5–1 mL/kg urine output. The duration of the surgery was about 5.5 h, with a total blood loss of 300 mL. At the end of surgery, the patient was extubated and transferred to the neuro intensive care unit (NICU) without any problem while the patient was hemodynamically stable, fully awake, and neurologically intact. Rescue analgesic was applied in NICU with 1 mg morphine at postoperative second hour. Five hours later to the NICU preference, swelling on the left preauricular region was noted, and it is increased in an hour (**fig. 1, 2**).



**Figure 1.** Presence of the parotitis.



**Figure 2.** Obstruction of the Stenon's orifice.

Local increase in temperature was found over the swollen area. Computed tomography was showed inflammatory swelling of the parotid glands and, obstruction of the excretory ducts. At that time patient was already treated with dexamethasone and prophylactic antibiotic (sefazoline 3 gr/day) and analgesic therapy (paracetamol 10 mg/kg) intravenously. Anti-inflammatory therapy was added to treatment. Intravenous fluid regimen is changed, and intravenous infusion of serum physiologic was increased to 100 mL/min. When the size of the swelling start to diminished on second postoperative day, patient was transferred to the service and it disappeared in a few days. The patient was discharged from the hospital six days after the operation.

## DISCUSSION

Parotitis in intensive care unit is a rare but declared complication. Swelling of the salivary glands, either bilateral or unilateral, can be observed in intensive care unit, during surgery or in the early postoperative period, or in 2 weeks postoperatively and spontaneously resolve over a period of a few hours/days, with no sequelae. It presents with a painful swelling and eodema, fluctuation, redness, crepitation, subcutaneous emphysema on palpation either bilateral or unilateral.

In literature, the incidence of postanesthetic parotitis was reported that 0.0028% (sao Paulo). The authors analyzed the 100,679 patients postoperatively. Only 3 patients diagnosed with parotitis related with perioperative factors such as malnutrition, immuno-suppression, prolonged immobilization and dehydration. They underlined that the relatively lower incidence of parotitis reported in past decades, and the decreasing incidence is related with routine perioperative antibiotic therapy and postoperative support.

The etiology is yet to be understood, although several theories were explained. Perioperative dehydration, poor condition, absence of perioperative antibiotic therapy, retrograde flow of air through the Stenon's orifice during straining, retention of secretions causing occlusion of the salivary ducts, perioperative use of atropine, succinylcholine and morphine are the most commonly predisposan factors for parotitis . Compression of the arterial or venous vasculature may decrease the blood supply, which may lead to ischemic parotitis.

In neurosurgical cases fluid regimes is relatively restricted during the perioperative period in NICU. Diuretics also increase the risk of dehydration in operating room and NICU. However, in this case, patient was haemodynamically stable, urine output was within the normal range and intraoperative hydration of the patient was adequate.

Another important factor is the position of the head or endotracheal tube obstruction of the Stenon duct by compression of endotracheal tube or pressure during the long-lasting procedures in especially lateral decubitis position is the another factor during the surgery or intensive care unit while the patient is intubated. In this case, we considered acute parotitis in the opposite side of the endotracheal tube fixation. However, if the compression related parotitis was occurred, parotitis should be

presented on the same side. In our report, parotitis was observed in the patient almost 8 hours later from intubation, 5 hours later from the extubation. There was no known disease related with parotitis in our case. Also, there was no subcutaneous emphysema on palpation of the swollen area. However, every factor may be triggered to the others such as limited hydration, long-lasting surgical duration, and small doses of morphine for postoperative pain.

In some cases patient could be required to endotracheal intubation cause of the upper airway oedema. For that reason, these patients should be monitor closely for upper airway obstruction in intensive care, until the size of the swelling start to diminished. The swelling has no clinical significance and will resolve spontaneously with symptomatic care. The intensivists are keep in mind the parotitis will be disappeared without any sequelae in a few days, however acute presence can be life treating.

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