



## Pediatric esophageal perforation due to firearm injuries during the Syrian war and a new suture technique



Ahmet Atıcı<sup>a,\*</sup>, Mehmet Emin Çelikkaya<sup>a</sup>, Çiğdem El<sup>b</sup>, Bülent Akçora<sup>a</sup>

<sup>a</sup> Mustafa Kemal University, School of Medicine, Department of Pediatric Surgery, 31124, Antakya, Hatay, Turkey

<sup>b</sup> Mustafa Kemal University, School of Medicine, Department of Pediatrics, 31124, Antakya, Hatay, Turkey

### ABSTRACT

The incidence of esophageal perforation (EP) due to firearm injury (FAI) is markedly low compared with that occurring in other organs. The most frequently reported cause of EP is iatrogenic injuries. The incidence of EP due to penetrating injuries, such as FAI, is very rare and highly destructive. Here we report cases of EP due to FAI in childhood during the Syrian war and elucidate a new suture technique.

### 1. Introduction

The incidence of esophageal perforation (EP) due to firearm injury (FAI) is markedly low compared with that occurring in other organs [1]. Typically, EP can be reported in situations like childhood trauma, dilatation due to esophagus stricture, endoscopic interventions, especially the neonatal period endotracheal intubation, during nasogastric catheterization, transesophageal echocardiography, swallowing caustic agent, and compulsive vomiting [2–7]. However, the incidence of EP due to penetrating injuries, such as FAI, is very rare (0.7%) and highly destructive [6,8]. The most frequently reported cause of EP is iatrogenic injuries (71%–84%) [1,3,7]. Here we report cases of EP due to FAI in childhood during the Syrian war and elucidate a new suture technique (Bakçora). (see Table 1).

### 2. Case 1

An 11-year-old male patient was referred to our hospital's emergency service because of a bomb explosion in Syria. The findings of the physical examination were as follows: general medical condition, good; SaO<sub>2</sub>, 80%; body heat, 38.2 °C; pulse, 102/min; respiration rate, 34/min; and blood pressure, 110/60 mmHg. Computed tomography (CT) revealed the orally administered contrast material extravasation between the pulmonary parenchyma and visceral pleura on the distal part of the esophagus. Accordingly, we applied an intravenous solution and a wide-spectrum antibiotic (ceftriaxone/flagyl) to the patient, who was operated immediately. Primarily, we performed esophagoscopy, which revealed a linear laceration on the thoracic esophagus (Fig. 1A, yellow arrow). Subsequently, we performed a left thoracotomy, and an approximately 9-cm long well-circumscribed perforation extending on the

longitudinal axis was observed on the central section of the esophagus (Fig. 1B, arrow). Accordingly, the perforation was repaired with Bakçora suture (Fig. 1C), and the patient was nourished because no leakage was reported on an esophagogram at postoperative day 7. On postoperative day 9, the patient was discharged uneventfully.

### 3. Case 2

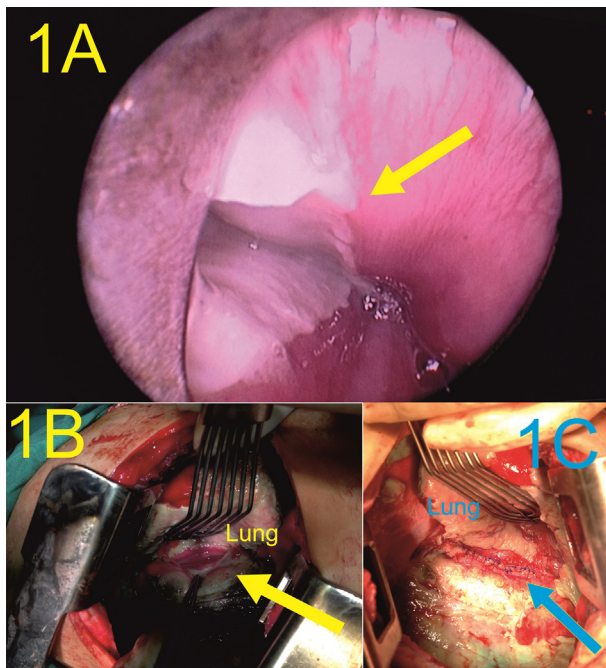
A 7-year-old female was referred to our hospital because of FAI that occurred 2 h ago. Physical examination revealed her bad general medical condition; she was intubated and her SaO<sub>2</sub> was 92%, body heat was 36.5 °C, pulse was 112/min, respiration rate was 34/min, and blood pressure was 110/60 mmHg. In addition, a 1-cm diameter tissue defect was observed that had an inlet hole close to the mandible on the cervical midline (Fig. 2). We applied an intravenous solution and a wide-spectrum antibiotic (ceftriaxone/flagyl) to the patient and was subsequently operated urgently. An approximately 0.5-cm perforation was present near the anterior access of the esophagus. In addition, we observed that the skin defect and esophagus were related. No pathology was observed on bronchoscopy. We performed a 4-cm incision by extending the inlet hole on the cervical midline to the left. Further exploration revealed that the esophagus was seemingly ruptured entirely. We anastomosed with 4/0 pds (absorbable suture) and Bakçora sutures end-to-end. The patient was transferred to the intensive care unit in the intubated state. On postoperative day 7, the patient was extubated and on postoperative day 8, she was given food orally. Finally, the patient was discharged on postoperative day 17.

\* Corresponding author.

E-mail addresses: [ahmetatici06@gmail.com](mailto:ahmetatici06@gmail.com), [ahmetim1501@hotmail.com](mailto:ahmetim1501@hotmail.com) (A. Atıcı).

**Table 1**  
Summarizes the primary diagnosis and information of all patients.

Patients	Age (year)/ Sex	Primer Diagnosis	Operation 1	Operation 2	Complication	Time of Feding/day	Time of hospitalization/ day	Results
1	11 Y/M	Firearm injury	Left thoracotomy/Primary repair with Bakçora suture	–	None	7	9	Cure
2	7 Y/F	Firearm injury	Side to side anastomosis with Bakçora suture	–	None	8	17	Cure
3	10 Y/M	Firearm injury	Primary repair	Side to side anastomosis with Bakçora suture	Recurrence	9	22	Cure
4	4 Y/M	Firearm injury	Primary repair and flap	–	None	33	42	Cure



**Fig. 1.** A: A linear laceration on thoracic esophagus was observed in esophagoscopy. B: Approximately 9-cm long well-circumscribed perforation extending on the longitudinal axis was observed on the central section of the esophagus. C: Perforation was repaired with Bakçora suture.

**4. Case 3**

A 10-year-old male patient was referred to our hospital because of FAI. Based on his physical examination, his general medical condition was bad and body heat was 36.4 °C, SaO<sub>2</sub> was 80%–88%, pulse was 136/min, the respiration rate was 28/min, and the blood pressure was 107/45 mmHg. We were informed that the patient was injured approximately 12 h ago and had undergone a surgery in Syria. There was an access hole on the neck at the incisura jugularis level, 7-cm laceration, and a penrose drain on the laceration due to FAI (Fig. 3). In addition, we noted an air intake through the access hole. The bilateral chest tube was attached due to bilateral hemothorax. Besides, pneumomediastinum was detected from a direct graph. Accordingly, the patient was operated urgently. Esophagoscopy revealed that the restorations were performed on the esophagus anterior and posterior wall at the incisura jugularis level. We examined the patient through the same incision and found sutures belonging to reparation on the anterior wall of the esophagus and trachea left lateral. Moreover, there was an active air leakage from the trachea. Accordingly, we performed a reparation with 3/0 vicryl and put primer supportive sutures on the anterior side of the esophagus. Then, the patient was transferred to the intensive care unit in the intubated state. On postoperative day 3, we reexamined the patient because of saliva leakage from the incision. During the second operation, we detected a longitudinal perforation (3-



**Fig. 2.** Approximately a 1-cm diameter tissue defect was observed that had an inlet hole close to the mandible on the cervical midline.

cm long) on the esophagus posterior wall, which was not observed in the first operation. Anastomose sutures were obtained from the esophagus anterior wall. We resected the defected part of the esophagus using 2/0 vicryl and performed the Bakçora sutures end-to-end anastomoses. On postoperative day 7, no leakage was observed. Although chest tubes were removed on postoperative day 8, the patient was nourished on postoperative day 9. Finally, the patient was discharged uneventfully on postoperative day 22.

**5. Case 4**

A 4-year-old male patient was referred to our hospital because of FAI that had occurred 6 h ago. The findings of physical examination were as follows: body heat, 37.4 °C; SaO<sub>2</sub>, 100%; 130/min pulse; respiration rate, 55/min; and blood pressure, 128/66 mmHg. His general condition was bad, and he was intubated. We observed an access hole on the thyroid cartilage (diameter, 0.5 mm; Fig. 4A). The patient was placed in the intensive care unit and was followed up conservatively. On day 5, the patient's body temperature soared up to 39 °C as a result of the injury. From CT, mediastinal abscess was observed. We

Download English Version:

<https://daneshyari.com/en/article/8810823>

Download Persian Version:

<https://daneshyari.com/article/8810823>

[Daneshyari.com](https://daneshyari.com)