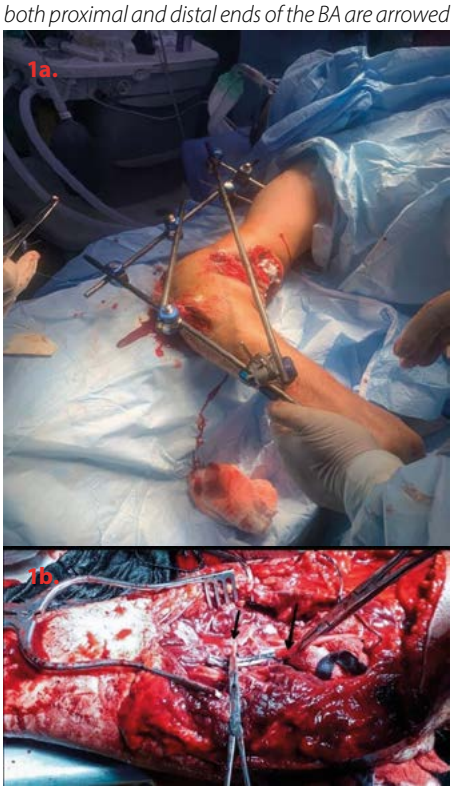
Fig. 1a, 1b. *(1a): A 25-year-old male presented with a history of gunshot to the right upper limb, causing a compound fracture of the humerus, proximal radius, and ulnar bones associated with BA injury; (1b): the same patient explored for BA injury; both proximal and distal ends of the BA are arrowed*



repair (4 patients). The wound infections were healed in two weeks after effective antibiotic therapy. Three out of the six patients who suffered postoperative thrombosis underwent successful embolectomy, while in the remaining three, amputation of the limb was required. Similar outcomes were also published by other surgeons (10).

A closer look at the data indicates that penetrating trauma was the most common cause of BA injury followed by blunt trauma, a finding discordant with the study conducted by Asensio, J. et al., where vascular injury resulted mainly from a fractured humerus in 57% of cases, followed by contusion in 33% and penetrating injury in 10% of the cases (9). Blunt trauma and stab wounds were the most commonly detected injuries in a prior study (11). This variation could be owing to the fact that the majority of patients in the present study were military and were injured by explosions or bullet injuries.

Surgical treatment in the current study included anastomoses (81.7%), an autogenously vein interposition graft (9.6%), and ligation (8.7%), while in the study by Andreev A. et al, 55% of the patients were managed with end-to-end anastomosis and 45% were treated with autogenous grafts (12).

The proportion of BA reconstruction using interposition of the great saphenous vein is relatively small in this case series, because most of our cases (76%) were caused by bullet injuries (Tab. 1) which required only end-to-end anastomosis because of a short arterial defect of about less than 1 cm in length. Thus, only those with long defects were treated with interposition of the great saphenous vein graft.

It is worth mentioning that 75 patients referred with brachial artery injury were rescued by the referring hospital in terms of ABC life-saving measures. The remaining 29 patients reached the ED of our center and were managed according to standard approaches.

The overall survival rate in the current case series was 97.2% (4 deaths only). Each yielded from coexisting other multiple severe injuries, such as penetrating head, chest, and abdominal injuries. None of the demises were due to their BA injuries. Comparable outcomes were also published by vascular surgeons from the USA in their case series that included 124 patients two years ago (13).

The first of the four deaths was a 25-year-old male who presented with two gunshots, with one involving the right brachial artery and the other causing severe intracranial hemorrhage, and the patient died two days postoperatively at the RCU. The second victim presented with associated abdominal polytraumatic injuries involving the right hepatic lobe, spleen, IVC, and large bowel. The patient died due to multiple organ failure after seven hours in the RCU. The third fatality was a 55-year-old heavy smoker who presented with superadded COPD and left-sided lung contusion. It was reported that the mortality rate among cases with lung contusion may reach up to 25% in a recent cohort (14). The last dead patient presented with a blast injury that, in addition to the right brachial vessels, involved the head, abdomen, and bilateral chest injuries. The patient required massive blood transfusion, and unfortunately passed away seven hours postoperatively after exploratory laparotomy and right thoracotomy.

Fig. 2. *(2a) A 30-year-old male with a history of large shell injury to the BA with segmental loss of 3 cm who required interposition reverse great saphenous vein (2b)*

Patients who died as a result of brachial artery injuries per se or with associated injuries before hospital admission were excluded from this case series. However, a rough estimate of a prehospital death rate of about 5% can be assumed. Almost all were due to massive or associated head, abdominal, and chest injuries.

Most patients in the current study had an associated injury besides BA injury. In comparison, another study by Visser P.A. et al. revealed that 58% of cases were associated with a chest injury which was the commonest general injury (15). Most patients in the current study were injured by an explosion, and this might explain the multiple injuries.

Several surgeons provided insight as regards the management of BA injuries. Difficulties and failures were not infrequent, given the arterial small size, superficial site, and the high incidence of spasm develop-