

Introduction

The brachial artery (BA) is the axillary artery extension that supplies the major arterial circulation to the arm. It starts at the teres major inferior border and finishes in the cubital fossa opposite the radial neck, in which it divides into the ulnar and radial branches beneath the bicipital aponeurosis. The BA lies anterior to the triceps and brachialis muscles and is generally superficial and perceptible along its course (1).

Extremity vascular trauma poses several diagnostic and therapeutic challenges. In modern combat, the increased employment of high-energy weaponry is linked to significant vascular damage. During the last Iraqi war (early in this century), the rates of trauma victims reached 50-70% (2). Injuries to the BA are the most common in the upper limbs. Even though vascular injuries due to blunt trauma are uncommon, they represent attentive conditions as they are readily neglected unless the clinician has a strong suspicion (3). Hard indicators such as pulsatile bleeding, palpable thrill, growing hematoma, and/or evidence of distal ischemia can be detected in more than 90% of vascular injuries by obtaining a medical history and performing a physical examination. In both civilian and military fields, the use of ultrasonography for the identification of vascular injuries is on the rise (4).

Vascular injuries should be detected and treated as part of the total patient resuscitation, using the recognized standards of "advanced trauma life support" procedures. Joint effort, awareness of the occasional indirect clinical signs of arterial injuries, a high suspicion index, operative communiqué, proper use of imaging techniques, thorough familiarity with applicable diagnostic tools, and surgical repair sequence are just a few of the crucial issues that will result in successful outcomes (5).

The aim of this study was to identify the most common causes, associated injuries, and management approaches in the case of brachial artery injuries.

Patients and Methods

Study setting and design

This was a retrospective survey conducted in Al-Emamain Al-Kadhymain Medical City

Tab. 1. Distribution of the participants according to their basal characteristics (N = 104)

Characteristic	No.	%	
Gender	Male	90	86.7
	Female	14	13.3
Age group (years)	< 30	31	29.8
	31–40	52	50.1
	> 40	21	20.1
Occupation	Military	87	83.7
	Civilian	17	16.3
Side of brachial artery injury	Right side	45	43
	Left side	59	57
Mechanisms of injuries			
Penetrating injuries	Bullet injuries	76	73.1
	Single large shells	14	13.5
	Multiple missiles	6	5.8
Blunt injuries		8	7.7

Tab. 2. Distribution of the enrolled patients according to the surgical interventions

Surgical interventions	No.	%
End-to-end anastomosis	85	81.7
Fasciotomy	15	14.4
Repair of muscle or tendon	12	11.5
Vein graft interposition	10	9.6
Ligation	9	8.7
Amputation	6	5.8
Arteriovenous fistula	3	2.9
Embolectomy	3	2.9
Shunt use	2	1.9
Prosthetic graft	0	0

Surgical Department, Baghdad, Iraq. The data were collected retrospectively during the period from the 1st of January 2015 to the 1st of April 2021.

Study population

The study included a review of the records of 104 patients who were admitted to the hospital and diagnosed with brachial artery injury, and in whom physical examination and Doppler ultrasound revealed the absence of arterial pulses. Twenty-one patients were submitted to angiography to confirm BA injury preoperatively.

The patients (N = 104) were evaluated according to their basal characteristics, surgical interventions, signs, symptoms, and associated injuries, the associated injury (some patients presented with more than one injury).

Ethical issues

The study protocol was approved by authorities of health directorate (ID T-009013, 2021); ethics committee of the hospital (ID BB-0023), with the director of the hospital being the chairperson of the ethics committee; and College of Medicine, Al-Nahrain University (ADI: 1201-D-21-

2020). As this study had a retrospective design, no patient consent was obtained; however, every precaution was taken to protect the privacy of patients. The entire study was conducted according to the principles set forth in the Helsinki Declaration.

Statistical analyses

The statistical analysis included descriptive data using numbers and percentages. The data were collected, processed, and transferred to MS Word Excel sheet, using Windows 10. The frequencies and percentages were used for nominal parameters. The data were processed and analyzed by using computer software SPSS (Statistical package for social science) version 24.

Data availability

The data associated with this paper are available on reasonable request from the corresponding author.

Results

Twenty-one patients were submitted to angiography to confirm BA injury preoperatively. Of the total, males were predominant