

ÜST EKSTREMİTE ARTERLERİNİN YARALANMALARINDA CERRAHİ DENEYİMLER: 52 VAKANIN RETROSPEKTİF DEĞERLENDİRİLMESİ

Surgical Experience On Upper Extremity Arterial Injuries; Evaluation Of 52 Cases

Sedat Özcan¹, Buğra Destan²

ÖZET

Amaç: : Üst ekstremitte damar yaralanması sebebi ile acil servisimize başvuran ve acil olarak opere edilen 52 olguya uygulanan cerrahi müdahaleleri ve sonuçlarını sunmayı amaçladık.

Çalışma Planı: Çalışmamızda Nisan 2007- Temmuz 2011 Tarihleri arasında üst ekstremitte arter yaralanması sebebi ile opere edilen 52 hasta (40 Erkek, 12 Kadın ; Ortalama Yaş 40.8 ,yaş dağılımı 21-54) yaralanan vasküler yapıların dağılımı , eşlik eden lezyonlar, uygulanan cerrahi prosedürler ve yaralanma sebepleri açısından retrospektif olarak değerlendirildi.

Bulgular: En sık yaralanma nedeni kesici delici alet yaralanması idi. Bunu ateşli silah yaralanması ve araç içi trafik kazası takip etti. Hastaneye geliş süresi ortalama olarak 2.7 saatti.(15 dk- 36 saat) . Olguların 18 inde (%34.6) Radyal arter yaralanması, 12 sinde (% 23.07) Ulnar arter yaralanması, 15 inde (%28.8) Brachiyal Arter yaralanması, 2 olguda (% 3.8) Aksiler Arter Yaralanması ve 1 olguda (% 1.9) Subclavian Arter Yaralanması tespit edilerek acilen operasyona alındı. 35 Olguda ucuca anastomoz , 12 olguda safen ven interpozisyonu ,5 olguda politetrafloroetilen (PTFE) greft implantasyonu yapıldı. 2 Olguda(%3.8) amputasyona gerek duyuldu. Bu hastaların birisi yaralanmadan yaklaşık 36 sonra getirildiğinden, birisi ise crush injury olduğundan re-vaskularizasyondan fayda görmeyerek amputasyona ihtiyaç duyuldu. Mortalite %3.8 (2 vaka) olarak saptandı. Bu hastalar beraberinde toraks ve abdomen yaralanmalarını eşlik ettiği ve acil servise hipovolemik şokta getirilmiş hastalardı.

Sonuç: Üst ekstremitte damar yaralanmalarında mortaliteyi ve morbiditeyi etkileyen en önemli faktörler erken cerrahi girişim ve eşlik eden farklı lezyonların olup olmasındır.

Anahtar kelimeler: Arter Yaralanması, Üst Ekstremitte, Cerrahi

¹Rize Eğitim Araştırma Hastanesi, Kardiyo Vasküler Cerrahi Kliniği, Rize

²Balıkesir Devlet Hastanesi, Kardiyo Vasküler Cerrahi Kliniği, Balıkesir

Sedat Özcan, Uzm. Dr.
Buğra Destan, Uzm. Dr.

İletişim:

Dr. Sedat Özcan
Rize Eğitim Araştırma Hastanesi
Kardiyo Vasküler Cerrahi Kliniği

Tel: 0 464 2130491

e-mail:

sedatozcan78@hotmail.com

ABSTRACT

Objective: We aimed to report surgical interventions and outcomes of 52 cases admitted to our emergency unit due to upper extremity vascular injury and operated under emergency conditions.

Materials and Methods: We retrospectively analyzed 52 patients (40 males and 12 females, mean age 40.8 years, ranged between 21-54 years) who were operated due to upper extremity arterial injury from April 2007 through July 2011, in terms of injured vascular structures, concomitant lesions, performed surgical procedures and the causes of injuries.

Results: Cut and stab wound was the most common cause of admission. That was followed by gunshot wounds and car accidents. Mean hospital arrival time was 2.7 hours (15 minutes-36 hours). Radial artery injury in 18 cases (34.6%), ulnar artery injury in 12 cases (23.07%), brachial artery injury in 15 cases (28.8%), axillary artery injury in 2 (3.8%) and subclavian artery injury in one case were detected and operated under emergency conditions. End-to-end anastomosis in 35 cases, saphenous vein interposition in 12 cases and polytetrafluoroethylene (PTFE) graft implantation in 5 cases were performed. Amputation was required in 2 cases (3.8 %). One of those two patients was carried to the emergency unit after 36 hours following the accident and the other one did not benefit from revascularization. Mortality rate was 3.8% (2 cases). They had thoracic and abdominal trauma, and were in hypovolemic shock when they arrived in emergency unit.

Key words: Arterial Injury, Upper Extremity, Surgery

INTRODUCTION

Vascular injuries are known from the very beginning of history of medicine. Ligation of lacerated vascular injury was reported by Hipocrate, Gailen, Paul V. Aegina in 97 BC. On the other hand Ambrois Pare reported that cauterize with hot iron is more suitable on those cases. Most of the improvements on vascular surgery were during the Second World War (1). In 19th century despite the rapid advance in vascular anastomosis amputation rate was %36 (2).

PATIENTS AND METHODS

In our study we report 52 patients (40 male, 12 female, mean age 40.8) operated for upper extremity vascular injury. All of them were first evaluated at emergency department. Absent of distal pulse, bleeding, serious hematoma at the site of vascular tract was enough for diagnostic criteria of vascular injury.

Some patients were evaluated with arterial duplex ultrasonography (US) in addition to physical examination. Angiographic evaluation was not done to any patient. Generally proximal tourniquet was administered proximal to laceration site before surgical intervention. Firstly proximal and distal part was explored and looped. Before clamping 5000 IU heparin was administered routinely. Embolectomy was indicated in 8 patients (%15.3). Orthopedic surgery was needed for accompanying tendon, bone, and tissue damage. Low-molecular-weight heparin (LMWH) was administered to all patients after operation.

RESULTS

Stab wound injury was the utmost cause of vascular damage. It was followed by gunshot wounds and car accidents. Mean hospital arrival time was 2.7 hours (15 min-36 hours).

Radial artery injury in 18 cases (34.6%), ulnar artery injury in 12 cases (23.07%), brachial artery injury in 15 cases (28.8%), axillary artery injury in 2 (3.8%) and subclavian artery injury in one case were detected and operated under emergency conditions. In 35 patients, end to end anastomosis was done. In 12 patient saphenous vein interposition and in 5 patient graft implantation were needed. Two patients (%3.8) underwent amputation one of whom was admitted 36 hours later and one was seriously crushed and there was no site for revascularization. Two patient died because of accompanying thoracic and abdominal injury and were in deep hemorrhagic shock at the time of arrival. Mean hospital stay was 3.5 (1-16) days. In 9 (%17.3) patient median nerve, in 3 (%5.76) patient ulnar nerve, in 2 (%3.8) radial nerve were injured. Tendon cut was detected in 18 patients. In 2 patient humerus, in 3 ulnar, and in 2 patient radius fracture accompanied to vascular injury. Thoracal trauma existed with subclavian artery injury in one patient and following arterial reconstruction thoracotomy was done and upper lobe of lung was repaired. In one patient urgent laparotomy and splenectomy with transvers colon repair was done having brachial injury that was repaired with saphenous interposition.

Postoperative complications can be classified as infection, graft thrombosis, revision due to postoperative bleeding, neurologic deficit, deep venous thrombosis and amputation.

DISCUSSION

Basic principles concerning vascular surgery were first stated by Carrel (3). Experiences gained through world war I and II, diminished the amputation rate. Upper extremity injuries account for %30 of all injuries (4). Type of vascular injury together with accompanying pathology is the most important factor affecting morbidity and mortality. In our country upper extremity vascular injuries occur due to gunshot wounds, stab wounds and rarely to trauma (6). Most of them were male with a rate of %

76.9. Firstly vascular injuries should be fixed. Delayed revascularizations bear serious complications. Subclavian and axillary artery injury is less susceptible to injury due to their localisation. Although brachial artery injury is mentioned most in literatures (7) we observed mostly radial artery injury.

In our study we tried to fix the accompanying venous injuries to improve the success of surgical interventions.

Although the repair of distal vascular structural injuries like radial and ulnar is said to be indicated only under circumstances where distal arcus isn't sufficient (8) we tried to fix all of them. Only 3 of them were ligated that were not appropriate for reconstruction.

As a result we concluded that early intervention shortens the ischemic period and improve success of revascularization and also venous injuries shouldn't be underestimated if possible they must be fixed. Although no angiographic evaluation was needed, under clinical suspicion it should be used as a diagnostic purpose.

REFERENCES

1. Bozer AY,Boke ME : Kalp ve Damar Yaralanmaları Hacettepe Üniversitesi Yayınları Basımevi . 1983:147-60.
2. Ceviz M, Yekeler İ, Ates A ve ark . Periferik Arter yaralanmaları ve tedavisi , 175 Vakanın değerlendirilmesi :Damar Cerrahisi Dergisi 1996;5: 66-72.
3. Fabian TC,Turkleson ML, Caney TL ,et all . Injury to the popliteal artery .Am.J.Surgery 1982; 143:225-28.

4. Dragas M, Davidovic L, Kostic D et al. Upper Extremity Arterials İnjuries: Factors, influency and treatments outcome, Injury 2009;40:815-19.
5. W.Darin Clouse, Todd E Rasmusse et al. Upper extremity vascular injury: A current in-theatre report from operation iraqi freedom. Annals of Vascular Surgery 2006;20:429-34.
6. Margaret M Griffen, Eric R Upper extremity vascular trauma : current therapy of trauma and surgical critical care (first edition). 2008: 477-484.
7. R.Wakes, Anny Urban et al. The mangled extremity . The Journal of Emery Medicine 2008; 35 (4): 437-44.
8. Ashok N.Babu, Ernest E Morre. Extremity Vascular İnjuries. Abernatys surgical secrets (6th edition). 2009: 158-64.