



Retroperitoneal Necrotizing Soft Tissue Infection Caused By A Shoulder Trauma: A Case Report

Zülfikar Karabulut*, Tarkan Ergun**, Hatice Lakadamyalı**, Haluk Erdoğan***,
Ege Ünalçın****, Gökhan Moray*

*Baskent University Medical Faculty Department of Surgery

** Department of Radiology

*** Department of Infection Disease

**** Department of Emergency Unit

Necrotizing soft tissue infections are uncommon, rapidly progressive and life threatening characterized by subcutaneous tissue and fascial necrosis. Despite advances in modern medical therapy, the morbidity and mortality of retroperitoneal necrotizing soft tissue infections are still very high. Treatment principles include early diagnosis, repeated extensive debridement, broad spectrum antibiotics and supportive treatment. In this case report we discuss a necrotizing soft tissue infection involving retroperitoneal space after a shoulder trauma.

Key Words: Retroperitoneal space, Infection, Surgery

Omuz Travması Sonrası Gelişen Retroperitoneal Nekrotizan Yumuşak Doku İnfeksiyonu: Olgu Sunumu

Nekrotizan yumuşak doku enfeksiyonları, cilt altı dokuların ve fasyanın nekrozu ile karakterize hızlı ilerleyen ve hayatı tehdit eden nadir enfeksiyonlardır. Modern tıbbi tedavideki ilerlemelere rağmen retroperitoneal nekrotizan yumuşak doku enfeksiyonlarının morbidite ve mortalitesi hala yüksektir. Tedavi prensipleri erken tanı, tekrarlayan geniş debridmanlar, geniş spektrumlu antibiyotikler ve destek tedavisi içerir. Bu olgu sunumunda omuz travması sonrasında gelişen ve retroperitoneal bölgeyi tutan nekrotizan yumuşak doku enfeksiyonu tartıştık.

Anahtar Kelimeler: Retroperitoneal alan, İnfeksiyon, Cerrahi

A 59-year-old male admitted to the emergency unit with complaints about pain and swollen tissue on his right shoulder after a trauma. Edema, local sensitivity and hyperemia which radiates to the clavicle were the physical examination findings. Magnetic resonance imaging of the right shoulder revealed that there was a complete rupture of the anterior capsule of the right glenohumeral joint and an avulsion fracture which was located in anterior inferior labrum, intraarticular and periarticular effusion, retraction and tearing of all layers of supraspinatus tendon was also detected. The patient was hospitalized in an orthopaedic clinic and surgical drainage was performed after the purulent aspiration material obtained fine needle puncture on this site. The microbiologic investigation revealed methicillin sensitive *Staphylococcus aureus* growth so Cephazolin sodium was prescribed. On the 4th day of admission, the patient complained of nausea and severe back pain. He was also complaining about dispnea, sweating and abdominal distension. On examination, the patient had fever

(39 °C), pulse rate of 120/minute, respiratory rate of 21/minute and a blood pressure of 160/90 mm Hg. He had a leucocytosis of 31.000/mm³. Also there was skin edema and extreme sensitivity underneath the right scapula. Thorax and abdomen computerized tomography (CT) imaging was obtained and it revealed that there were gas collections in subcutaneous tissue, inter and intramuscular, retroperitoneal and intraperitoneal spaces of the right abdominal site (Figure 1). The patient underwent an urgent operation. Operation was performed in lateral decubitus position by 3 flank incisions. During the operation a widespread necrosis was observed which was extending from the right scapula lower site onto the right anterior abdominal wall involving the rectus abdominis and the musculus obliquus externus, fascias and right retroperitoneal fat tissues. Aggressive wide range debridements were performed starting from under right scapula to spina iliaca anterior superior and inguinal ligament level and thoracolumbar vertebra to right rectus abdominis

muscles. All green-brown coloured necrotic tissues were totally debrided and in some places partial musculus obliquus externus resections were performed. The combination of cephazolin sodium, amikacin and metronidazole was prescribed as an amphoteric therapy.

Intraoperative cultures grew a polymicrobial flora, with *Pseudomonas aeruginosa*, *Escherichia coli*, *Enterococcus* and *Candida albicans* so the patient was treated with antibiotics meropenem, amikacin, vancomycin and fluconazol. During the first 8 days daily and every two days aggressive debridement was performed under general anesthesia and all the necrotic tissues were successfully removed. The patients vital symptoms were stabilized after aggressive debridement. The control CT was taken on the 18th day of admission and it did not reveal any gas collection (Figure 2).

During the treatment period, we used 0.9 % sodium chloride and 2 % boric acid for wound care. When the wound was free from the necrotic tissues and granulation tissue formed, it was closed by secondary sutures and the patient was discharged on the 55 th day of hospitalization.

Figure 1. Preoperative CT shows gas collections and inflammation images in retroperitoneal spaces of the right abdomen site.



Figure 2. Postoperative CT scan demonstrating only tissue defect secondary to operation. All necrotic tissue was removed and gas collections resolved by aggressive daily debridement.



DISCUSSION

Necrotizing soft tissue infection is a serious and rapidly progressive infection of subcutaneous tissue and superficial fascia with high morbidity and mortality rates.¹⁻³ The cause of this infection is usually polymicrobial which can be *Peptostreptococcus*, *Provitella*, *Bacteroides*, *Porphyromonas*, *Escherichia coli*, *Enterococci*, *Clostridium* and *Fusobacterium* species or if it is monobacterial, it is more likely to detect group A *Streptococcus* as the cause. *Pseudomonas aeruginosa* can rarely be an agent.^{1,2,4-7} The *Vibriosis* are another group which cause monobacterial necrotizing soft tissue infection. *Vibrio vulnificus* in particular is believed to be the most virulent type and it passes to humankind by seafood to make a necrotizing soft tissue infection.² Operative cultures grew a mixed flora with *Pseudomonas aeruginosa*, *Escherichia coli*, *Enterococcus* and *Candida albicans* and widespread tissue necrosis were detected in our case as expected.

Sometimes the appearance of the skin can be normal which may cause some delays in diagnosis. Crepitation can be detected by clinical and radiological examination. When the retroperitoneum is affected it takes more time for the symptoms to appear which causes some delays in surgical treatment.⁵ Plain radiography may show the presence of retroperitoneal gas but it is not diagnostic. It is believed that CT is the most specific method in detecting the presence of retroperitoneal gas.⁸ The operation can be planned after detecting the extent to

which the infection has spread by the help of CT as Charles *et al*⁹ showed in their studies.^{2,10}

The therapy principles in necrotizing soft tissue infection can be listed as clinical suspicion, early surgical exploration, aggressive and repetitive debridement, proper antibiotic therapy, intensive care, nutritional support and hyperbaric oxygen therapy in some cases.

All necrotic tissues have to be removed without considering the postoperative reconstruction. Retroperitoneal involvement is known to be uncommon and potentially fatal variant of necrotizing soft tissue infection. Sometimes prompt radical debridement can not be performed due to anatomic localization.⁴ Despite the importance of repeated and radical debridement in the management of retroperitoneal fasciitis the necessity of daily debridement has not been discussed. In this case report we wanted to demonstrate the importance of aggressive daily debridement (Figure 2).

A limited amount of published studies confirm the high rates of mortality and the main therapy consist of early aggressive repetitive debridement and supportive care. In our opinion, aggressive daily

debridement should be considered and not to be avoided in the management of retroperitoneal necrotizing fasciitis due to anatomic difficulties and wound care should be done daily by 2 % boric acid.

REFERENCES

- 1- Urschel DJ. Necrotizing soft tissue infections. Postgrad Med J. 1999; 75: 645-9.
- 2- Green RJ, Dafoe DC, Raffin TA. Necrotizing fasciitis. Chest. 1996; 110: 221-9.
- 3- Jayatunga AP, Caplan S, Paes TRF. Survival after retroperitoneal necrotizing fasciitis. Br J Surg. 1993; 80: 981.
- 4- Woodburn KR, Ramsay G, Gillespie, Miller DF. Retroperitoneal necrotizing fasciitis. Br J Surg. 1992; 79: 342-4.
- 5- Pryor JP, Piotrowski E, Seltzer CW, Gracias VH. Early diagnosis of retroperitoneal necrotizing fasciitis. Crit Care Med. 2001; 29: 1071-3.
- 6- Devin B, McCarthy A, Mehran R, Auger C. Necrotizing fasciitis of the retroperitoneum: An unusual presentation of group A Streptococcus infection. Can J Surg. 1998; 41: 156-60.
- 7- Brook I, Frazier EH. Clinical and microbiological features of necrotizing fasciitis. J Clin Microbiol. 1995; 33: 282-7.
- 8- Wysoki MG, Santora TA, Shah RM, et al. Necrotizing fasciitis: CT characteristics. Radiology. 1997; 203: 859-63.
- 9- Charles NJ, Sadler MA. Necrotizing perineal fasciitis in two paraplegic nursing-home residents: CT imaging findings. Abdom Imaging. 2001; 26: 443-6.
- 10- Paya K, Hayek BF, Rebandl W, Pollack A, Horcher E. Retroperitoneal necrotizing fasciitis in a 4-year old girl. J Pediatr Surg. 1998; 33: 778-80.

Corresponding Author:

Dr.Zülfikar KARABULUT
Baskent University Alanya Medical Center
Saray Mah.Yunus Emre Cad. No:1
07400 Alanya/Antalya/TURKEY
E-mail: drkarabulut33@yahoo.com
GSM : 532 504 48 23
Fax : 242 511 23 50