

# BÖLÜM 11

## ASETABULUM KIRIKLARINA YAKLAŞIM

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### GİRİŞ

Asetabulum kırıkları, ortopedik travma cerrahisi alanında, pelvisin karmaşık 3 boyutlu cerrahisi ve majör nörovasküler yapılara, ve önemli iç organlara yakın olması sebebiyle en zorlu alanlardan biridir(1).

Çalışmalarda asetabulum kırıklarının insidansı yüz binde 4 olarak bildirilmiştir(2). Ortopedik travma cerrahisi bakımından yoğun merkezlerde bile nispeten nadir olarak karşılaşılmaması, bu kırıkların tecrübeli ortopedik travma cerrahları için bile zor kırıklar olmasına neden olur(3).

Asetabulum kırıkları yaşla bimodal dağılım gösteren kırıklardır. Genellikle genç erkeklerde yüksekte düşmeler trafik kazaları gibi yüksek enerjili travmalarla görülebildiği gibi, Yaşlı kadın hasta popülasyonunda, postmenopozal osteoporozun kemiklerde meydana getirdiği zayıflık nedeniyle basit düşme gibi düşük enerjili travmalarla da karşılaşılabilmektedir(4).

Bu kırıklarda da diğer alt ekstremitte eklem içi kırıklarda olduğu gibi uzun dönemde posttravmatik osteoartritten kaçınmak ve iyi sonuçlar elde etmek için anatomik redüksiyon sağlanmalıdır(5).

Karmaşık 3 boyutlu anatomi ve çevreleyen yumuşak dokuların önemi sebebiyle bu kırıklarda tedavi yaklaşımları literatürde süregelen tartışmalar ve gelişmeler arz etmektedir(6).

### ANATOMİ

Pelvis insan vücudunda, omurgalardan gelen yükün, ayakta iken asetabulumlar aracılığı ile, otururken de tuber iskiadikumlar aracılığı ile zemine iletiildiği bir bağlantı noktasıdır(7). Pelvis içerisinde genitoüriner organlar, gastorointestinal sistemin bir bölümü, kasların tutunma yerleri, majör vasküler yapılar, ve sinirler bulunur. Bu özelliklerinden dolayı bu bölgeyi ilgilendiren travmalar ölüm ya da ciddi sakatlıklara neden olabilir(1,7).

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Cerrahi tedavi planlanırken kırığın doğru anlaşılması sonrası uygun cerrahi yaklaşım seçimi gereklidir. Bunun için cerrahi yaklaşımlara hakim olmak gereklidir.

## KAYNAKLAR

1. Cimerman M, Kristan A, Jug M. Fractures of the acetabulum: from yesterday to tomorrow. *Int Orthop*. 2021 Apr;45(4):1057-1064. doi: 10.1007/s00264-020-04806-4. Epub 2020 Sep 22.
2. Melhem E, Riouallon G, Habboubi. Epidemiology of pelvic and acetabular fractures in France. *Orthop Traumatol Surg Res*. 2020 Sep;106(5):831-839. doi: 10.1016/j.otsr.2019.11.019. Epub 2020 Feb 1.
3. Laird A, Keating JF. Acetabular fractures: a 16-year prospective epidemiological study. *J Bone Joint Surg Br*. 2005 Jul;87(7):969-73. doi: 10.1302/0301-620X.87B7.16017.
4. Mauffrey C, Hao J, Cuellar DO 3rd. The epidemiology and injury patterns of acetabular fractures: are the USA and China comparable? *Clin Orthop Relat Res*. 2014 Nov;472(11):3332-7. doi: 10.1007/s11999-014-3462-8.
5. Tornetta P 3rd. Displaced acetabular fractures: indications for operative and nonoperative management. *J Am Acad Orthop Surg*. 2001 Jan-Feb;9(1):18-28. doi: 10.5435/00124635-200101000-00003.
6. Ziran N, Soles GLS, Matta JM. Outcomes after surgical treatment of acetabular fractures: a review. *Patient Saf Surg*. 2019 Mar 16;13:16. doi: 10.1186/s13037-019-0196-2.
7. DeSilva JM, Rosenberg KR. Anatomy, Development, and Function of the Human Pelvis. *Anat Rec (Hoboken)*. 2017 Apr;300(4):628-632. doi: 10.1002/ar.23561. PMID: 28297176.
8. Tile, M. (2003). *Anatomy of the Pelvic Ring* in M. Tile, D. Helfet, & J. F. Kellam, Eds.; 3rd ed., pp. 12–22 Philadelphia: LIPPINCOTT WILLIAMS & WILKINS.
9. Tile, M., & Bircher, M. D. (2003) in M. Tile, D. Helfet, & J. F. Kellam, Eds.; 3rd ed., pp. 22–32 Philadelphia: LIPPINCOTT WILLIAMS & WILKINS.
10. Collinge C, Archdeacon M, Sagi HC. Quality of radiographic reduction and perioperative complications for transverse acetabular fractures treated by the Kocher-Langenbeck approach: prone versus lateral position. *J Orthop Trauma*. 2011 Sep;25(9):538-42. doi: 10.1097/BOT.0b013e31820b913d.
11. Mauffrey C, Stacey S, York PJ. Radiographic Evaluation of Acetabular Fractures: Review and Update on Methodology. *J Am Acad Orthop Surg*. 2018 Feb 1;26(3):83-93. doi: 10.5435/JAAOS-D-15-00666.
12. Johnson TS. The spur sign. *Radiology*. 2005 Jun;235(3):1023-4. doi: 10.1148/radiol.2353030052.
13. Matta JM. Fractures of the acetabulum: accuracy of reduction and clinical results in patients managed operatively within three weeks after the injury. *J Bone Joint Surg Am*. 1996 Nov;78(11):1632-45.
14. Tile, M. (2003). DESCRIBING THE INJURY: CLASSIFICATION OF ACETABULAR FRACTURES. In M. Tile, D. Helfet, & J. F. Kellam, Eds.; 3rd ed., pp. 427–475 Philadelphia: LIPPINCOTT WILLIAMS & WILKINS.
15. Butler BA, Lawton CD, Hashmi SZ. The Relevance of the Judet and Letournel Acetabular Fracture Classification System in the Modern Era: A Review. *J Orthop Trauma*. 2019 Feb;33 Suppl 2:S3-S7. doi: 10.1097/BOT.0000000000001401.
16. Letournel E. Acetabulum Fractures: Classification and Management. *J Orthop Trauma*. 2019 Feb;33 Suppl 2:S1-S2. doi: 10.1097/BOT.0000000000001424. PMID: 30688851.
17. Alonso, J. E., Kellam, J. F., M. (2015). Pathoanatomy and classification of acetabular Fractures. In M. Tile, D. Helfet, & J. F. Kellam (Eds.), *Fractures of the Pelvis and Acetabulum – Principles and Methods of Management* (pp. 447–470). Stuttgart: Thieme.
18. Butterwick D, Papp S, Gofton W. Acetabular fractures in the elderly: evaluation and management. *J Bone Joint Surg Am*. 2015 May 6;97(9):758-68. doi: 10.2106/JBJS.N.01037.

19. Firoozabadi R, Spittle C, Schlepp C. Determining Stability in Posterior Wall Acetabular Fractures. *J Orthop Trauma*. 2015 Oct;29(10):465-9. doi: 10.1097/BOT.0000000000000354.
20. Byun Y, Cho Y, Kim K. Less Invasive Anterior Iliac Approach and Compression Osteosynthesis for the Treatment of High Anterior Column Fractures of the Acetabulum. *Clin Orthop Surg*. 2018 Sep;10(3):279-285. doi: 10.4055/cios.2018.10.3.279. Epub 2018 Aug 22
21. Fahmy M, Abdel Karim M, Khaled SA. Single versus double column fixation in transverse fractures of the acetabulum: A randomised controlled trial. *Injury*. 2018 Jul;49(7):1291-1296. doi: 10.1016/j.injury.2018.05.024.
22. Hu T, Xu H, Jiang C. Treatment of Transverse with or without Posterior Wall Fractures of Acetabulum Using a Modified Smith-Petersen Combined with Kocher-Langenbeck Approach. *Med Sci Monit*. 2017 Jun 7;23:2765-2774. doi: 10.12659/msm.901966.
23. Yu JK, Chiu FY, Feng CK. Surgical treatment of displaced fractures of posterior column and posterior wall of the acetabulum. *Injury*. 2004 Aug;35(8):766-70. doi: 10.1016/j.injury.2003.09.036.
24. Wan Y, Yao S, Chen K. Treatment of anterior column posterior hemitransverse fracture with supra-ilioinguinal approach. *J Int Med Res*. 2021 Jan;49(1):300060520982824. doi: 10.1177/0300060520982824.
25. Ridley WE, Xiang H, Han J. Gull-wing sign: Acetabular fracture. *J Med Imaging Radiat Oncol*. 2018 Oct;62 Suppl 1:142. doi: 10.1111/1754-9485.17\_12786.
26. Tannast M, Siebenrock KA. Die operative Behandlung der Azetabulum-T-Fraktur über eine chirurgische Hüftluxation oder einen Stoppa-Zugang [Operative treatment of T-type fractures of the acetabulum via surgical hip dislocation or Stoppa approach]. *Oper Orthop Traumatol*. 2009 Sep;21(3):251-69. German. doi: 10.1007/s00064-009-1803-7.
27. Chen MJ, Hollyer I, Wadhwa H. Management of the posterior wall fracture in associated both column fractures of the acetabulum. *Eur J Orthop Surg Traumatol*. 2021 Aug;31(6):1047-1054. doi: 10.1007/s00590-020-02850-9.
28. Magala M, Popelka V, Božik M. Konzervativná liečba zlomenín acetabula: epidemiológia a strednodobé klinické a rádiologické výsledky [Conservative treatment of acetabular fractures: epidemiology and medium-term clinical and radiological results]. *Acta Chir Orthop Traumatol Cech*. 2015;82(1):51-60. Slovak.
29. Mayo KA. Open reduction and internal fixation of fractures of the acetabulum. Results in 163 fractures. *Clin Orthop Relat Res*. 1994 Aug;(305):31-7.
30. Rubin G, Monder O, Zohar R. Toe-touch weight bearing: myth or reality? *Orthopedics*. 2010 Oct 11;33(10):729. doi: 10.3928/01477447-20100826-02.
31. Patel JH, Moed BR. Instability of the Hip Joint After Posterior Acetabular Wall Fracture: Independent Risk Factors Remain Elusive. *J Bone Joint Surg Am*. 2017 Dec 6;99(23):e126. doi: 10.2106/JBJS.16.01427.
32. Grimshaw CS, Moed BR. Outcomes of posterior wall fractures of the acetabulum treated nonoperatively after diagnostic screening with dynamic stress examination under anesthesia. *J Bone Joint Surg Am*. 2010 Dec 1;92(17):2792-800. doi: 10.2106/JBJS.J.00112.
33. Jimenez ML, Tile M, Schenk RS. Total hip replacement after acetabular fracture. *Orthop Clin North Am*. 1997 Jul;28(3):435-46. doi: 10.1016/s0030-5898(05)70300-x.
34. Madhu R, Kotnis R, Al-Mousawi A. Outcome of surgery for reconstruction of fractures of the acetabulum. The time dependent effect of delay. *J Bone Joint Surg Br*. 2006 Sep;88(9):1197-203. doi: 10.1302/0301-620X.88B9.17588.
35. Mast, J. W. (2015). Techniques of reduction and fixation for acetabular fractures: open methods . In M. Tile, D. Helfed, & J. F. Kellam (Eds.), *Fractures of the Pelvis and Acetabulum – Principles and Methods of Management* (pp. 660–693). Stuttgart: Thieme.
36. Moed BR, WillsonCarr SE, Watson JT. Results of operative treatment of fractures of the posterior wall of the acetabulum. *J Bone Joint Surg Am*. 2002 May;84(5):752-8. doi: 10.2106/00004623-200205000-00008.
37. Gänsslen A, Grechenig S, Nerlich M. Standard Approaches to the Acetabulum Part 1: Kocher-Langenbeck Approach. *Acta Chir Orthop Traumatol Cech*. 2016;83(3):141-6. English.

38. Smoll NR. Variations of the piriformis and sciatic nerve with clinical consequence: a review. *Clin Anat*. 2010 Jan;23(1):8-17. doi: 10.1002/ca.20893.
39. Negrin LL, Benson CD, Seligson D. Prone or lateral? Use of the Kocher-Langenbeck approach to treat acetabular fractures. *J Trauma*. 2010 Jul;69(1):137-41. doi: 10.1097/TA.0b013e3181b-28ba6.
40. Alexa O, Malancea RI, Puha B. Results of surgical treatment of acetabular fractures using Kocher-Langenbeck approach. *Chirurgia (Bucur)*. 2013 Nov-Dec;108(6):879-85.
41. Arazi, M. Reduction and fixation through ilioinguinal approach. *TOTBİD Dergisi* 2012;11(2):161-166 DOI: 10.5606/totbid.dergisi.2012.20
42. Hirvensalo E, Lindahl J, Böstman O. A new approach to the internal fixation of unstable pelvic fractures. *Clin Orthop Relat Res*. 1993 Dec;(297):28-32.
43. Sagi HC, Afsari A, Dziadosz D. The anterior intra-pelvic (modified rives-stoppa) approach for fixation of acetabular fractures. *J Orthop Trauma*. 2010 May;24(5):263-70. doi: 10.1097/BOT.0b013e3181dd0b84..
44. Meena S, Sharma PK, Mittal S. Modified Stoppa Approach versus Ilioinguinal Approach for Anterior Acetabular Fractures; A Systematic Review and Meta-Analysis. *Bull Emerg Trauma*. 2017 Jan;5(1):6-12.