

# Bölüm 31

## ENDOMETRİOMA CERRAHİSİNİN SERUM AMH DÜZEYLERİ ÜZERİNE OLAN ETKİSİ

Doç. Dr. Mustafa KARA

ÜNİTE 3

Endometrioma cerrahisi sonrası over rezervinde veya over dokusunda muhtemel azalma veya total kayıp riski preoperatif dönemde klinisyen tarafından hastaya mutlaka anlatılmalıdır. (ESH-RE-2014 guideline). Cerrahin deneyimi ve uygulanan cerrahi yöntem olası riski azaltmakla beraber risk hiçbir zaman sıfır olmayacaktır. Postoperatif periyotta hastanın over rezervindeki muhtemel değişiklikleri saptamak için elimizde hormonal testler ve USG bulunmaktadır. AFC'nin erken postoperatif dönemde değerlendirilmesi esnasında doku ödeme ya da elektrokoterizasyona sekonder değişiklikler nedeniyle sayısında yalancı artma veya azalmalar saptanabilir. Bu nedenle erken dönem kullanımı kısıtlıdır. FSH, LH ve E2 düzeyleri ile takipte ise preoperatif A3 baseline değerleri bakılmamış ise çok faydalı değildir. AMH, siklik fluktuasyonlarına rağmen siklusun her döneminde bakılabilme özelliği ve fonksiyonel over rezervini yansıtmaya açısından şu an için elimizdeki en iyi test olma özelliğini korumaktadır. Hastanın geç postoperatif dönemde vazomotor şikayetlerinin olması da dikkate alınmalıdır. Endometrioma cerrahisi yapan tüm klinisyenler endometrioma varlığının over rezervi üzerine olası olumsuz etkisini göz önüne alarak ve hasta yaşını da değerlendirerek preoperatif dönemde hastaların mutlaka FSH, LH, E2 düzeylerini değerlendirmeli, vazomotor semptomlarını sorgulamalı ve dosyalarına kaydetmelidir. **Editorial**

### Giriş

Endometriozis üreme çağındaki kadınlarda görülen kronik bir hastalıktır. Bütün organları tutabilir ama; overler % 17-44'lük oran ile en sık etkilenen organlardır. Over içine yerleşen ektopik endometrial doku kist oluşumuna neden olur ve endometrioma adını alır. Endometriomaların over epitelinin çöломik metaplazisi ya da over yüzeyindeki endometriotik odağın invaginasyonu sonucu oluştuğuna inanılmaktadır (1). Genellikle asemptomatiktir. Semptomatik olan hastalarda en sık belirtiler pelvik ağrı, infertilite ya da adneksiyal kitledir. Endometriozis ile ilgili olarak birçok çalışma yapılmıştır ancak; insidans, patogenezi, doğal seyir ve optimal tedavi konusundaki tartışmalar devam etmektedir. Cerrahi tedavinin rezidüel ovaryan fonksiyonu azalttığına dair soru işaretleri doğmuştur. Bugün, laparoskopide deneyimli cerrahların yaptığı endometriozis cerrahisi sonrasında bile geride kalan over dokusundaki follikül sayısında azalma olduğunu biliyoruz (2,3). Ovaryan rezerv over dokusunun işlev görme potansiyeli olarak tanımlanır ve overdeki folliküllerin sayısı ve kalitesini yansıtır (4). Ovaryan rezervi en iyi gösteren 2 test antral follikül sayısı (AFC) ve anti müllerian hormon (AMH) ölçümleridir. Tekrarlayan cerrahi tedavilerin ovaryan rezerv üzerinde olumsuz etkileri olduğu için hastalığın yönetiminde temel amaç cerrahiden habildigince kaçınmak şeklinde olmalıdır (5). Bu bö-

## Kaynaklar

1. Busacca M, Vignali M. Ovarian endometriosis: from pathogenesis to surgical treatment. *Curr Opin Obstet Gynecol* 2003;15(4):321-6.
2. de Ziegler D, Borghese B, Chapron C. Endometriosis and infertility: pathophysiology and management. *Lancet* 2010;376(9742):730-8.
3. Garcia-Velasco JA, Somigliana E. Management of endometriomas in women requiring IVF: to touch or not to touch. *Hum Reprod* 2009;24(3):496-501.
4. Chang HJ, Han SH, Lee JR, Jee BC, Lee BI and Suh CS. Impact of laparoscopic cystectomy on ovarian reserve: serial changes of serum anti-Mullerian hormone levels. *Fertil Steril* 2010;94(1):343-9.
5. Practice Committee of American Society for Reproductive Medicine. Treatment of pelvic pain associated with endometriosis. *Fertil Steril* 2008;90(5):260-9.
6. Daniell JF, Kurtz BR, Gurley LD. Laser laparoscopic management of large endometriomas. *Fertil Steril* 1991;55(4):692-5.
7. Donnez J, Nisolle M, Gillet N, Smets M, Bassil S, and Casanas-Roux F. Large ovarian endometriomas. *Hum Reprod* 1996;11(3):641-6.
8. Sutton CJ, Ewen SP, Jacobs SA, Whitelaw NL. Laser laparoscopic surgery in the treatment of ovarian endometriomas. *J Am Assoc Gynecol Laparosc* 1997;4(3):319-23.
9. Canis M, Rabischong B, Houille C, Botchorishvili R, Jardon K, and Safi A. Laparoscopic management of adnexal masses: a gold standard? *Curr Opin Obstet Gynecol* 2002;14(4):423-8.
10. Marcoux S, Maheux R, Bérubé S. Laparoscopic surgery in infertile women with minimal or mild endometriosis. *Canadian Collaborative Group on Endometriosis. N Engl J Med* 1997;337(4):217-22.
11. Royal College of Obstetricians and Gynaecologists. The investigation and management of endometriosis (green-top guideline; no.24). London (England): RCOG;2006:3.
12. Scarselli G, Rizzello F, Cammilli F, Ginocchini L, Coccia ME. Diagnosis and treatment of endometriosis. A review. *Minerva Ginecol* 2005;57(1):55-78.
13. Donnez J, Lemaire-Rubbers M, Karaman Y, Nisolle-Pochet M, Casanas-Roux F. Combined (hormonal and microsurgical) therapy in infertile women with endometriosis. *Fertil Steril* 1987;48(2):239-42.
14. Milingos S, Kallipolitis G, Loutradis D, Liapi A, Drakakis P, and Antsaklis A. Factors affecting post-operative pregnancy rate after endoscopic management of large endometriomata. *Int J Gynaecol Obstet* 1998;63(2):129-37.
15. Jones KD, Sutton CJ. Pregnancy rates following ablative laparoscopic surgery for endometriomas. *Hum Reprod* 2002;17(3):782-5.
16. Kitajima M, Defrere S, Dolmans MM, Colette S, Squifflet J, and Van Langendonck A. Endometriomas as a possible cause of reduced ovarian reserve in women with endometriosis. *Fertil Steril* 2011;96(3):685-91.
17. Nyhoj L, Mathiesen R, Jochumsen KM. Association between endometriosis and ovarian cancer [in Danish]. *Ugeskr Laeger* 2010;172(48):3336-9.
18. Aris A. Endometriosis-associated ovarian cancer: a ten-year cohort study of women living in the Estrie Region of Quebec, Canada. *J Ovarian Res* 2010;3:2.
19. Erzen M, Rakar S, Klancnik B, and Syrijanen K. Endometriosis-associated ovarian carcinoma (EAOC): an entity distinct from other ovarian carcinomas as suggested by a nested case-control study. *Gynecol Oncol* 2001;83(1):100-8.
20. Kobayashi H, Sumimoto K, Moniwa N, Imai M, Takakura K, and Kuromaki T. Risk of developing ovarian cancer among women with ovarian endometrioma: a cohort study in Shizuoka, Japan. *Int J Gynecol Cancer* 2007;17(1):37-43.
21. Kawaguchi R, Tsuji Y, Haruta S, Kanayama S, Sakata M, and Yamada Y. Clinicopathologic features of ovarian cancer in patients with ovarian endometrioma. *J Obstet Gynaecol Res* 2008;34(5):872-87.
22. Roman H, Tarta O, Pura I, Opris I, Bourdel N, and Marpeau L. Direct proportional relationship between endometrioma size and ovarian parenchyma inadvertently removed during cystectomy, and its implication on the management of enlarged endometriomas. *Hum Reprod* 2010;25(6):1428-32.
23. Dogan E, Ulukus EC, Okyay E, Ertugrul C, Saygili U, and Koyuncuoglu M. Retrospective analysis of follicle loss after laparoscopic excision of endometrioma compared with benign nonendometriotic ovarian cysts. *Int J Gynaecol Obstet* 2011;114(2):124-7.
24. Var T, Batioglu S, Tonguc E, Kahyaoglu I. The effect of laparoscopic ovarian cystectomy versus coagulation in bilateral endometriomas on ovarian reserve as determined by antral follicle count and ovarian volume: a prospective randomized study. *Fertil Steril* 2011;95(7):2247-50.
25. Celik HG, Dogan E, Okyay E, Ulukus C, Saatli B, Uysal S, Koyuncuoglu M. Effect of laparoscopic excision of endometriomas on ovarian reserve: serial changes in the serum antimullerian hormone levels. *Fertil Steril* 2012;97(6):1472-8.
26. Weenen C, Laven JS, Von Bergh AR, Cranfield M, Groome NP, and Visser JA. Anti-Mullerian hormone expression pattern in the human ovary: potential implications for initial and cyclic follicle recruitment. *Mol Hum Reprod* 2004;10(2):77-83.

27. Andersen CY, Byskov AG. Estradiol and regulation of anti-Mullerian hormone, inhibin-A, and inhibin-B secretion: analysis of small antral and preovulatory human follicles' fluid. *J Clin Endocrinol Metab* 2006;91(10):4064-9.
28. Kevenaar ME, Themmen AP, Laven JS, Sonntag B, Fong SL, and Uitterlinden AG. Anti-Mullerian hormone and anti-Mullerian hormone type II receptor polymorphisms are associated with follicular phase estradiol levels in normo-ovulatory women. *Hum Reprod* 2007;22(6):1547-54.
29. Streuli I, Fraise T, Pillet C, Ibecheole V, Bischof P, and de Ziegler D. Serum antimullerian hormone levels remain stable throughout the menstrual cycle and after oral or vaginal administration of synthetic sex steroids. *Fertil Steril* 2008;90(2):395-400.
30. Wunder DM, Bersinger NA, Yared M, Kretschmer R, Birkhauser MH. Statistically significant changes of antimullerian hormone and inhibin levels during the physiologic menstrual cycle in reproductive age women. *Fertil Steril* 2008;89(4):927-33.
31. Pigny P, Jonard S, Robert Y, Dewailly D. Serum Anti-Mullerian Hormone as a Surrogate for Antral Follicle Count for Definition of the Polycystic Ovary Syndrome. *J Clin Endocrinol Metab* 2006;91(3):941-5.
32. Hazout A, Bouchard P, Seifer DB, Aussage P, Juncu AM, and Cohen-Bacrie P. Serum antimullerian hormone/müllerian-inhibiting substance appears to be a more discriminatory marker of assisted reproductive technology outcome than follicle-stimulating hormone, inhibin B, or estradiol. *Fertil Steril* 2004;82(5):1323-9.
33. Nelson SM, Yates RW, Lyall H, Jamieson M, Traynor I, and Gaudoin M. Anti-Mullerian hormone-based approach to controlled ovarian stimulation for assisted conception. *Hum Reprod* 2009;24(4):867-75.
34. Klinkert ER, Broekmans FJ, Looman CW, Habbema JD, te Velde ER. Expected poor responders on the basis of an antral follicle count do not benefit from a higher starting dose of gonadotrophins in IVF treatment: a randomized controlled trial. *Hum Reprod* 2005;20(3):611-5.
35. van der Gaast MH, Eijkemans MJ, van der Net JB, de Boer EJ, Burger CW, and van Leeuwen FE. Optimum number of oocytes for a successful first IVF treatment cycle. *Reprod Biomed Online* 2006;13(4):476-80.
36. Chang HJ, Han SH, Lee JR, Jee BC, Lee BI, and Suh CS. Impact of laparoscopic cystectomy on ovarian reserve: serial changes of serum antimullerian hormone levels. *Fertil Steril* 2010;94(1):343-9.
37. Iwase A, Hirokawa W, Goto M, Takikawa S, Nagatomo Y, and Nakahara T. Serum anti-mullerian hormone level is a useful marker for evaluating the impact of laparoscopic cystectomy on ovarian reserve. *Fertil Steril* 2010;94(7):2846-9.
38. Hirokawa W, Iwase A, Goto M, Takikawa S, Nagatomo Y, and Nakahara T. The post-operative decline in serum anti-mullerian hormone correlates with the bilaterality and severity of endometriosis. *Hum Reprod* 2011;26(4):904-10.
39. Somigliana E, Vercellini P, Vigano P, Ragni G, Crosignani PG. Should endometriomas be treated before IVF-ICSI cycles?. *Hum Reprod Update* 2006;12(1):57-64.
40. Muzii L, Bianchi A, Croce C, Mancini N, Panici PB. Laparoscopic excision of ovarian cysts: is the stripping technique a tissue-sparing procedure? *Fertil Steril* 2002;77(3):609-14.
41. Hachisuga T and Kawarabayashi T. Histopathological analysis of laparoscopically treated ovarian endometriotic cysts with special reference to loss of follicles. *Hum Reprod* 2002;17(2):432-5.
42. Marconi G, Vilela M, Quintana R and Sueldo C. Laparoscopic ovarian cystectomy of endometriomas does not affect the ovarian response to gonadotropin stimulation. *Fertil Steril* 78(4):876-8.
43. Fedele L, Bianchi S, Zanconato G, Bergamini V and Berlanda N. Bipolar electrocoagulation versus suture of solitary ovary after laparoscopic excision of ovarian endometriomas. *J Am Assoc Gynecol Laparosc* 2004;11(3):344-7.
44. Coric M, Barisic D, Pavicic D, Karadza M, Banovic M. Electrocoagulation versus suture after laparoscopic stripping of ovarian endometriomas assessed by antral follicle count: preliminary results of randomized clinical trial. *Arch Gynecol Obstet* 2011;283(2):373-8.
45. Hwu YM, Wu FS, Li SH, Sun FJ, Lin MH, and Lee RK. The impact of endometrioma and laparoscopic cystectomy on serum anti-mullerian hormone levels. *Reprod Biol Endocrinol* 2011;9(80):1-8.
46. Lee DY, Young Kim N, Jae Kim M, Yoon BK, Choi D. Effects of laparoscopic surgery on serum anti-mullerian hormone levels in reproductive-aged women with endometrioma. *Gynecol Endocrinol* 2011;27(10):733-6.
47. Tsoumpou I, Kyrgiou M, Gelbaya TA, Nardo LG. The effect of surgical treatment for endometrioma on in vitro fertilization outcomes: a systematic review and meta-analysis. *Fertil Steril* 2009;92(1):75-87.
48. Pabuccu R, Onalan G, Goktolga U, Kucuk T, Orhon E, and Ceyhan T. Aspiration of ovarian endometriomas before intracytoplasmic sperm injection. *Fertil Steril* 2004;82(3):705-11.
49. Wong BC, Gillman NC, Oehninger S, Gibbons WE, Stadtmauer LA. Results of in vitro fertilization in patients with endometriomas: is surgical removal beneficial? *Am J Obstet Gynecol* 2004;191(2):597-606.
50. Garcia-Velasco JA, Mahutte NG, Corona J, Zuniga V, Giles J, and Arici A. Removal of endometriomas

before in vitro fertilization does not improve fertility outcomes: a matched, case-control study. *Fertil Steril* 2004;81(5):1194-7.

51. Tinkanen H, Kujansuu E. In vitro fertilization in patients with ovarian endometriomas *Acta Obstet Gynecol Scand* 2000;79(2):119-22.
52. Suganuma N, Wakahara Y, Ishida D, Asano M, Kitagawa T, and Katsumata Y. Pretreatment for ovarian endometrial cyst before in vitro fertilization. *Gynecol Obstet Invest* 2002;54(Suppl 1):36-42.
53. Schubert B, Canis M, Darcha C, Artonne C, Pouly JL, and Dechelotte P. Human ovarian tissue from cortex surrounding benign cysts: a model to study ovarian tissue cryopreservation. *Hum Reprod* 2005;20(7):1786-92.
54. Donnez J, Lousse JC, Jadoul P, Donnez O, Squifflet J. Laparoscopic management of endometriomas using a combined technique of excisional (cystectomy) and ablative surgery. *Fertil Steril* 2010;94(1):28-32.
55. Jadoul P, Kitajima M, Donnez O, Squifflet J, Donnez J. Surgical treatment of ovarian endometriomas: state of the art? *Fertil Steril* 2012;98(3):556-63.
56. Gelbaya TA, Gordts S, D'Hooghe TM, Gergolet M, Nardo LG. Management of endometrioma prior to IVF: compliance with ESHRE guidelines. *Reprod Biomed Online* 2010;21(3):325-30.
57. Donnez J, Wyns C, Nisolle M. Does ovarian surgery for endometriomas impair the ovarian response to gonadotropin?. *Fertil Steril* 2001;76(4):662-5.
58. Tsolakidis D, Pados G, Vavilis D, Athanatos D, Tsalikis T, and Giannakou A. The impact on ovarian reserve after laparoscopic ovarian cystectomy versus three-stage management in patients with endometriomas: a prospective randomized study. *Fertil Steril* 2010;94(1):71-7.
59. Alborzi S, Momtahan M, Parsanezhad ME, Dehbashi S, Zolghadri J. A prospective, randomized study comparing laparoscopic ovarian cystectomy versus fenestration and coagulation in patients with endometriomas. *Fertil Steril* 2004;82(6):633-7.
60. Benaglia L, Somigliana E, Vercellini P, Abbiati A, Ragni G, and Fedele L. Endometriotic ovarian cysts negatively affect the rate of spontaneous ovulation. *Hum Reprod* 2009;24(9):2183-6.
61. Alborzi S, Ravanbakhsh R, Parsanezhad ME, Alborzi M, Alborzi S, and Dehbashi S. A comparison of follicular response of ovaries to ovulation induction after laparoscopic ovarian cystectomy or fenestration and coagulation versus normal ovaries in patients with endometrioma. *Fertil Steril* 2007;88(2):507-9.
62. Biacchiardi CP, Piane LD, Camanni M, Deltetto F, Delpiano EM, and Marchino GL. Laparoscopic stripping of endometriomas negatively affects ovarian follicular reserve even if performed by experienced surgeons. *Reprod Biomed Online* 2011;23(6):740-6.
63. Muzii L, Marana R, Angioli R, Bianchi A, Cucinella G, and Vignali M. Histologic analysis of specimens from laparoscopic endometrioma excision performed by different surgeons: does the surgeon matter? *Fertil Steril* 2011;95(6):2116-9.