

Chapter 6

INFECTION PROPHYLAXIS FOR GYNECOLOGIC OPERATIONS

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In gynecologic operations, surgical site infection appears as the most common complication despite many precautions. The most important reason is that gynecological areas own genital and gastrointestinal tracts having endogenous bacterial floras. These bacteria are shown in table 1 (Dellinger et al., 1994). According widely used criteria developed by The United States Centers for Disease Control and Prevention (CDC), surgical site infection is defined as an infection occurs at surgical area within 30 days after surgery or within 90 days if prosthetic material is implanted at surgery.

Table 1. Endogenous Bacteria of the Lower Genital Tract

Lactobasillus	Enterobacter agglomerans
Diphtheroids	Klebsiella pneumonia
Staphylococcus aureus	Proteus mirabilis
Staphylococcus epidermidis	Morgonella Morgani
Staphylococcus agalactiae	Citrobacter Diversus
Staphylococcus faecalis	Gaffky anaerobia
α-Hemolytic streptococci	Bacteriodes melaninogenicus
Group D streptococci	Bacteriodes disiens
Peptostreptococci	Bacteriodes fragilis
Peptococcus	Enterobacter cloacae
Clostridium	
Escherichia Coli	
Fusobacterium	

These infections are classified as incisional or organ/space. Incisional infections are classified as two groups. One of them is superficial (skin and subcutaneous tissue) incisional. The other one is deep incisional (muscle and fascia). Organ/space surgical site infections are defined as an infection involved anatomical part of the body (Steiner & Strand, 2017). Although organ/space surgical

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Colporrhaphy and Vaginal Slings

In vaginal operations such as transvaginally placed slings or anterior or posterior colporrhaphy, a polymicrobial flora including anaerobes and aerobes can contaminate surgical site (clean-contaminated wound), therefore antibiotic prophylaxis is recommended for these procedures (Morrill et al., 2013).

Vulvectomy

The skin of the vulva has a polymicrobial flora, so antibiotic prophylaxis may be suggested for vulvectomy (“ACOG Practice Bulletin No. 195: Prevention of Infection After Gynecologic Procedures,” 2018). However there are not enough studies for this procedure.

REFERENCES

- ACOG Practice Bulletin No. 135: Second-trimester abortion. (2013). *Obstet Gynecol*, 121 (6), 1394-1406. doi:10.1097/01.AOG.0000431056.79334.cc
- ACOG Practice Bulletin No. 195: Prevention of Infection After Gynecologic Procedures. (2018). *Obstet Gynecol*, 131 (6), e172-e189. doi:10.1097/AOG.0000000000002670
- The American College of Obstetricians and Gynecologists Practice Bulletin no. 150. Early pregnancy loss. (2015). *Obstet Gynecol*, 125 (5), 1258-1267. doi:10.1097/01.Aog.0000465191.27155.25
- Anderson, D. J., Podgorny, K., Berrios-Torres, S. I., Bratzler, D. W., Dellinger, E. P., Greene, L., . . . Kaye, K. S. (2014). Strategies to Prevent Surgical Site Infections in Acute Care Hospitals: 2014 Update. *Infection Control and Hospital Epidemiology*, 35, 605-627. doi:10.1017/S0899823x00193869
- Ayeleke, R. O., Mourad, S., Marjoribanks, J., Calis, K. A., & Jordan, V. (2017). Antibiotic prophylaxis for elective hysterectomy. *Cochrane Database of Systematic Reviews* (6). doi:ARTN CD004637
10.1002/14651858.CD004637.pub2
- Berrios, S. I., Umscheid, C. A., Bratzler, D. W., Leas, B., Stone, E. C., Kelz, R. R., . . . Prac, H. I. C. (2017). Centers for Disease Control and Prevention Guideline for the Prevention of Surgical Site Infection, 2017. *Jama Surgery*, 152 (8), 784-791. doi:10.1001/jamasurg.2017.0904
- Bratzler, D. W., Dellinger, E. P., Olsen, K. M., Perl, T. M., Auwaerter, P. G., Bolon, M. K., . . . Weinstein, R. A. (2013). Clinical Practice Guidelines for Antimicrobial Prophylaxis in Surgery. *Surgical Infections*, 14 (1), 73-156. doi:10.1089/sur.2013.9999
- Dellinger, E. P., Gross, P. A., Barrett, T. L., Krause, P. J., Martone, W. J., McGowan, J. E., Jr., . . . Wenzel, R. P. (1994). Quality standard for antimicrobial prophylaxis in surgical procedures. The Infectious Diseases Society of America. *Infect Control Hosp Epidemiol*, 15 (3), 182-188.
- Espey, E., Hoffer, L., Bulletins-Gynecology, C. P., & Reversible, L.-A. (2017). Long-Acting Reversible Contraception: Implants and Intrauterine Devices. *Obstetrics and Gynecology*, 130 (5), E251-E269.
- Hidron, A. I., Edwards, J. R., Patel, J., Horan, T. C., Sievert, D. M., Pollock, D. A., . . . Safe, P. N. H. (2008). Antimicrobial-Resistant Pathogens Associated With Healthcare-Associated Infections: Annual Summary of Data Reported to the National Health-

- care Safety Network at the Centers for Disease Control and Prevention, 2006-2007. *Infection Control and Hospital Epidemiology*, 29 (11), 996-1011. doi:10.1086/591861
- Low, N., Mueller, M., Van Vliet, H. A. A. M., & Kapp, N. (2012). Perioperative antibiotics to prevent infection after first-trimester abortion. *Cochrane Database of Systematic Reviews* (3). doi:ARTN CD005217
10.1002/14651858.CD005217.pub2
- Morrill, M. Y., Schimpf, M. O., Abed, H., Carberry, C., Margulies, R. U., White, A. B., . . . Re, S. G. S. S. (2013). Antibiotic prophylaxis for selected gynecologic surgeries. *International Journal of Gynecology & Obstetrics*, 120 (1), 10-15. doi:10.1016/j.ijgo.2012.06.023
- Ortega, G., Rhee, D. S., Papandria, D. J., Yang, J., Ibrahim, A. M., Shore, A. D., . . . Abdullah, F. (2012). An Evaluation of Surgical Site Infections by Wound Classification System Using the ACS-NSQIP. *Journal of Surgical Research*, 174 (1), 33-38. doi:10.1016/j.jss.2011.05.056
- Pereira, N., Hutchinson, A. P., Lekovich, J. P., Hobeika, E., & Elias, R. T. (2016). Antibiotic Prophylaxis for Gynecologic Procedures prior to and during the Utilization of Assisted Reproductive Technologies: A Systematic Review. *Journal of Pathogens*. doi:Unsp 4698314
10.1155/2016/4698314
- Poulsen, K. B., Bremmelgaard, A., Sorensen, A. I., Raahave, D., & Petersen, J. V. (1994). Estimated costs of postoperative wound infections. A case-control study of marginal hospital and social security costs. *Epidemiol Infect*, 113 (2), 283-295.
- Prevention of Infection After Gynecologic Procedures. (2018). *Obstetrics and Gynecology*, 131 (6), E172-E189. doi:10.1097/Aog.0000000000002670
- Schaberg, D. R., Culver, D. H., & Gaynes, R. P. (1991). Major Trends in the Microbial Etiology of Nosocomial Infection. *American Journal of Medicine*, 91, S72-S75. doi:-
Doi 10.1016/0002-9343 (91)90346-Y
- Steiner, H. L., & Strand, E. A. (2017). Surgical-site infection in gynecologic surgery: pathophysiology and prevention. *Am J Obstet Gynecol*, 217 (2), 121-128. doi:10.1016/j.ajog.2017.02.014
- Swoboda, S. M., Merz, C., Kostuik, J., Trentler, B., & Lipsett, P. A. (1996). Does intraoperative blood loss affect antibiotic serum and tissue concentrations? *Archives of Surgery*, 131 (11), 1165-1171.
- Tanner, J., Norrie, P., & Melen, K. (2011). Preoperative hair removal to reduce surgical site infection. *Cochrane Database of Systematic Reviews* (11). doi:ARTN CD004122
10.1002/14651858.CD004122.pub4
- Technology Assessment No. 12: Sonohysterography. (2016). *Obstet Gynecol*, 128 (2), e38-42. doi:10.1097/aog.0000000000001588
- Uppal, S., Bazzi, A., Reynolds, R. K., Harris, J., Pearlman, M. D., Campbell, D. A., & Morgan, D. M. (2017). Chlorhexidine-Alcohol Compared With Povidone-Iodine for Preoperative Topical Antisepsis for Abdominal Hysterectomy. *Obstetrics and Gynecology*, 130 (2), 319-327. doi:10.1097/Aog.0000000000002130
- Van Eyk, N., & van Schalkwyk, J. (2018). No. 275-Antibiotic Prophylaxis in Gynecologic Procedures. *Journal of Obstetrics and Gynaecology Canada*, 40 (10), E723-E733. doi:10.1016/j.jogc.2018.07.007
- van Kasteren, M. E. E., Mannien, J., Ott, A., Kullberg, B. J., de Boer, A. S., & Gyssens, I. C. (2007). Antibiotic prophylaxis and the risk of surgical site infections following total hip arthroplasty: Timely administration is the most important factor. *Clinical Infectious Diseases*, 44 (7), 921-927. doi:10.1086/512192