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Robotic Surgical Management of Urinary Fistulae

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39.1 Introduction

In developed countries, vesicovaginal fistula (VVF) is often a complication of urogynecologic surgery. Abdominal hysterectomy is the most common cause of VVF, estimated to occur in 1/1,800 procedures.[1] Radiation therapy and obstetrical traumas are other known causes of VVF. The diagnosis is often made 1–3 weeks postoperatively, with the most common presentation being persistent vaginal urine leakage. The diagnosis is confirmed with intravesical dye (methylene blue) resulting in vaginal tampon discoloration. The intravesical dye can be used to differentiate vesicovaginal from ureterovaginal fistula or identify the coexistence of these fistulae. A cystogram may also aid in identifying a VVF. Axial imaging with intravenous contrast or an intravenous pyelogram should be used to further assess the possibility of a concomitant ureterovaginal fistula. Cystoscopy and further diagnostic testing may be required to localize the fistula. An initial trial of conservative treatment is appropriate, but success is infrequent (7–12%).[1] Conservative measures include bladder drainage with a catheter, cauterization of the fistulous tract, anticholinergics, and antibiotics when indicated. Definitive treatment often requires surgical intervention. Primary surgical repair of VVF that occur secondary to surgery are successfully repaired in 75–97% of cases.[1] Several surgical techniques have been described and each offers distinct advantages. However, controversy still exists over the ideal approach and timing of repair. Vesicovaginal fistula may be treated by various surgical approaches, including transvaginal or transabdominal (extravesical or transvesical). Surgeon preference often plays a significant role in the decision-making process.[2-4] In general, a vaginal approach is associated with less morbidity, diminished blood loss, and less postoperative bladder irritability. Furthermore, it may be performed in an outpatient setting and results often equal those achieved with an abdominal approach.[5,6] An abdominal approach is indicated when another intra-abdominal condition requires simultaneous surgical attention, or in situations where the fistula is high lying and/or the vaginal vaults preclude a vaginal approach.[5] Laparoscopy can be an alternative to the open abdominal approach for managing VVF. Nezhat et al.[7] initially reported laparoscopic VVF repair in 1994. Several other reports followed building on this initial experience.[2,8-13] Sotelo et al.[12] reported the largest laparoscopic series with a transvesical approach that leads to the fistulous tract expeditiously without the need for additional vaginal incision or further dissection of the vesicovaginal space. Laparoscopy allows for a limited cystotomy that has improved the historically more morbid O'Connor procedure in which the bladder is bivalved to the level of the fistula. Advantages of laparoscopy in general include magnification of

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