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SURGICAL MANAGEMENT OF APICAL PELVIC SUPPORT DEFECTS: EVALUATION OF THE INTRODUCTION OF ROBOTIC TECHNOLOGY

Aims of Study: Sacrocolpopexy is the gold-standard surgical procedure for the treatment of apical pelvic support defects, with success rates ranging from 93-99%. This operation has traditionally been performed through a major abdominal incision, the morbidity of which often made it a less favorable option than a vaginal approach. With the introduction of the Da Vinci™ robotic system, the ability to perform a sacrocolpopexy through a minimally-invasive approach has been greatly facilitated. Our objective in this study is to determine the effect the Da Vinci™ robotic system made on our surgical approach to apical pelvic support defects during the first 18 months of its institution at our medical center.

Study Design: We performed a retrospective review of our surgical database from 2007 to 2009. The total number of uterosacral suspensions, sacrospinous ligament fixations, iliococcygeus fascia suspensions, and abdominal sacrocolpopexy procedures during the 18 months prior to the introduction of the robotic system was compared to the corresponding numbers in the following 18 months after the robotic system was in use. The total number of robotic sacrocolpopexy procedures was also determined. The frequencies and percentages of each procedure were determined based on the total number of suspension cases in each time period. A chi-square test was performed to compare the percentages for each procedure. Statistical analysis was performed using JMP 8.0 with a significance level of α =0.05.

Results: During the three-year period, a total of 196 procedures (67 in the first 18 months, 129 in the second half) were performed for the management of apical pelvic support defects. In the 18 months prior to the initiation of robotic-assisted surgery, the primary procedure for prolapse repair at our institution was the uterosacral suspension with a rate of 69% (46/67). In the subsequent 18 months, after the introduction of the robotic technology, there was a notable decline in this procedure to only 23% (29/129) with a difference of 46% ($p < .0001$). Similarly, the rates of abdominal sacrocolpopexy declined from 24% (16/24) to 2.3% (3/129) after the introduction of the robotic technology. This difference of 22% was also found to be significant with a p-value < .0001. We did not find a statistically significant change in rates of sacrospinous ligament fixation and iliococcygeus fascia suspensions in the two time periods. Sacrospinous ligament fixation rose slightly from 3% (2/67) to 9% (12/129) with a difference of 6% ($p=0.103$). Iliococcygeus fascia suspension rates were similar in the two time periods with rates of 4.5% (3/67) and 3% (4/129), respectively, with a difference of only 1.5% ($p=0.622$). In the 18 months that the robotic technology has been used at our institution, the rates of robotic sacrocolpopexy were 63% (81/129), making this the primary method of apical prolapse repair during this time. In comparing vaginal to abdominal approaches, there was a decline in the overall percentage of vaginal cases from 76% (51/67) to 35% (45/84) with a difference of 41% ($p<.0001$).

Interpretation of Results: With the institution of the robotic technology, our approach to surgical repair of apical pelvic support defects has significantly changed from primarily a vaginal approach to an abdominal approach. The rates of uterosacral suspension procedures demonstrated a marked decline and the robotic-assisted sacrocolpopexy has become our primary procedure for apical prolapse repair.

Conclusion of Message: At our institution, the surgical approach to apical prolapse repair significantly changed after the introduction of robotic technology. Evaluation of surgical outcomes following this paradigm shift are ongoing.

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Was this study approved by an ethics committee?	**Yes**
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Was the Declaration of Helsinki followed?	**Yes**
Was informed consent obtained from the patients?	**No**