Pitfalls of robot-assisted radical prostatectomy: A comparison of positive surgical margins between robotic and laparoscopic surgery.

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Abstract

OBJECTIVES: To compare the surgical outcomes of laparoscopic radical prostatectomy and robot-assisted radical prostatectomy, including the frequency and location of positive surgical margins.

METHODS: The study cohort comprised 708 consecutive male patients with clinically localized prostate cancer who underwent laparoscopic radical prostatectomy (n = 551) or robot-assisted radical prostatectomy (n = 157) between January 1999 and September 2012. Operative time, estimated blood loss, complications, and positive surgical margins frequency were compared between laparoscopic radical prostatectomy and robot-assisted radical prostatectomy.

RESULTS: There were no significant differences in age or body mass index between the laparoscopic radical prostatectomy and robot-assisted radical prostatectomy patients. Prostate-specific antigen levels, Gleason sum and clinical stage of the robot-assisted radical prostatectomy patients were significantly higher than those of the laparoscopic radical prostatectomy patients. Robot-assisted radical prostatectomy patients suffered significantly less bleeding (P < 0.05). The overall frequency of positive surgical margins was 30.6% (n = 167; 225 sites) in the laparoscopic radical prostatectomy group and 27.5% (n = 42; 58 sites) in the robot-assisted radical prostatectomy group. In the laparoscopic radical prostatectomy group, positive surgical margins were detected in the apex (52.0%), anterior (5.3%), posterior (5.3%) and lateral regions (22.7%) of the prostate, as well as in the bladder neck (14.7%). In the robot-assisted radical prostatectomy patients, they were observed in the apex, anterior, posterior, and lateral regions of the prostate in 43.0%, 6.9%, 25.9% and 15.5% of patients, respectively, as well as in the bladder neck in 8.6% of patients.

CONCLUSIONS: Positive surgical margin distributions after robot-assisted radical prostatectomy and laparoscopic radical prostatectomy are significantly different. The only disadvantage of robot-assisted radical prostatectomy is the lack of tactile feedback. Thus, the robotic surgeon needs to take this into account to minimize the risk of positive surgical margins.


KEYWORDS: laparoscopic radical prostatectomy; positive surgical margin; prostate cancer; retropubic radical prostatectomy; robot-assisted laparoscopic radical prostatectomy

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