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ORIGINAL ARTICLE

Exploring positive surgical margins after minimally invasive radical prostatectomy: Does body habitus really make a difference ?

Marges chirurgicales après prostatectomie radicale laparoscopique et robot assistée pour tumeur localisée à la glande : l'indice de masse corporelle fait il la différence ?

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KEYWORDS

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Summary

Background. — Positive surgical margins (PSMs) at radical prostatectomy (RP) are generally recognized as a surrogate of poor or difficult dissection of the prostatic gland. In open RP cohorts, obesity seems to be associated to an increased risk of PSMs, probably due to the technical challenge that obese men pose to surgical access. Minimally invasive RP has been claimed to possibly reduce PSM rate. Aim of the study was to explore the impact of obesity and body habitus on PSM risk and their localisation during laparoscopic and robotic-assisted RP.

Materials and methods. — We reviewed 539 prospectively enrolled patients undergoing laparoscopic and robotic-assisted RP with pT2 prostate cancer. The outcome measured was rate of PSM according to the BMI and surgical approach (laparoscopic vs robotic-assisted). Patients were categorized in BMI < 25 kg/m², BMI 25-29.9 kg/m² and BMI >30 kg/m² groups respectively and compared using Kruskal-Wallis or χ^2 test, as appropriate. Uni- and multivariate logistic regression models were constructed to assess the impact of BMI and surgical technique on PSM risk.

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Results. – Overall, 127 (24%) of men had PSMs detected at final specimen evaluation. Mean PSM length was 3.9 ± 3.4 mm, and 30 (6%) men presented significant margins ≥ 4 mm. Analysing the rate of PSMs across BMI categories, no significant association between increased BMI and PSM was detected (all $P > 0.48$). On uni- and multivariate logistic regression BMI was not a statistically significant risk factor for PSM ($P = 0.14$), nor was the minimally invasive technique (laparoscopic vs robotic-assisted) ($P = 0.54$).

Conclusions. – In this study obese men do not appear to have a significant increase in risk of PSMs at RP compared to lean and overweight men when operated by a minimally invasive approach. The magnified vision and increased access to the pelvis allowed by a laparoscopic and robotic-assisted approach may be accountable for our findings. Larger studies are needed to validate our results.

Level of proof. – 4.

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MOTS CLÉS

Index de masse corporelle ;
Coelioscopie ;
Robotique ;
Obésité ;
Cancer de la prostate ;
Marge positif

Résumé

Contexte. – Les marges chirurgicales positives (MP) après prostatectomie radicale (PR) résultent d'une dissection difficile de la glande prostatique. L'obésité semble être associée à un risque accru de MP après chirurgie ouverte, compte tenu d'un accès plus aléatoire à l'espace rétropubien. Le but de cette étude était d'explorer l'impact de l'obésité sur le risque de MP et leur localisation après PR laparoscopique pure et robotique.

Matériel et méthodes. – Nous avons revus les dossiers de 539 patients opérés de PR laparoscopiques pures ou robot-assistées présentant un cancer de la prostate classé pT2. Le résultat mesuré était le taux de MP selon l'IMC et l'approche chirurgicale (laparoscopique vs assistée par robotique). Les patients ont été classés selon leur IMC < 25 kg/m², IMC 25-29,9 kg/m² et IMC > 30 kg/m². Les groupes d'IMC ont été comparés en utilisant le test de Kruskal-Wallis ou χ^2 , selon les cas. Des modèles de régression logistique uni et multivariée ont été construits pour évaluer l'impact de l'IMC et de la technique chirurgicale sur le risque de MP.

Résultats. – Cent vingt-sept hommes (24%) avaient des MP sur la pièce de prostatectomie. La longueur moyenne des MP était $3,9 \pm 3,4$ mm. 30 hommes (6%) présentaient des marges significatives ≥ 4 mm. En analysant le taux de MP selon les groupes d'IMC, aucune association significative n'a été détectée ($p > 0,48$). En régression logistique uni et multivariée, l'IMC n'était pas un facteur de risque statistiquement significatif de MP ($p = 0,14$), quelque soit la technique ($p = 0,54$).

Conclusions. – Dans cette étude rétrospective, les hommes obèses ne semblaient pas avoir une augmentation significative du risque de MP après PR comparés aux hommes maigres ou en surpoids lorsqu'ils étaient opérés par une approche laparoscopique pure ou assistée par robot.

Niveau de preuve. – 4.

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Introduction

Prostate cancer (PCa) is a major health concern worldwide, being the second most common neoplasm and sixth cause of cancer-related death in the world [1]. Robotic-assisted prostatectomy (RALP) is becoming the new standard of treatment in the local control of disease, with comparable oncologic outcomes to the open approach [2]. The ability to fully resect the prostate and avoid positive surgical margins (PSMs) is one of the most important objectives of prostatectomy, although there is still debate concerning the impact of a PSMs on long-term oncologic outcomes [3,4]. Indeed, patients with PSMs are at increased risk of biochemical recurrence [3,5] and receive more frequently adjuvant

radiotherapy. These can impact on patients' quality of life [6] and be a source of stress and anxiety [7].

Multiple risk factors for PSMs have been identified, including prostate volume, tumor volume, elevated Gleason score and, most of all, pT3 disease [3,4,8]. Obesity has also been associated to PSMs in several studies performed on open prostatectomy series [9–11]. The minimally invasive approach (RALP and laparoscopic radical prostatectomy, LRP) may ease surgical access and visibility in obese men, simplifying the procedure in this population. This could result in a reduction of PSMs after minimally invasive RP in the obese population. Recently, Suardi et al reported a reduction of PSMs after RALP compared to open radical prostatectomy [8]: whether these findings can be extended to

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