376

Fauconnier A[1], Cosson M[2], Debodinance P[3], Bader G[4], Youssef Azer Akladios C[5], Salet-Lizee D[6], Campagne-Loiseau S[7], Deffieux X[8], Ferry P[9], de Tayrac R[10], Fritel X[11], Lucot J[12]

1. *CHI Poissy-Saint-Germain, Poissy, EA 7285 RISCQ, Université Versailles Saint-Quentin, France,* ***2.*** *Univ. Hosp. Jeanne de Flandre, Lille, France,,* ***3.*** *Centre Hosp. de Dunkerque, Dunkerque, France,* ***4.*** *CHI Poissy-Saint-Germain, Poissy, France,* ***5.*** *Ho^pital de Hautepierre, Strasbourg, France,* ***6.*** *Groupe Hosp. Diaconesses Croix St-Simon, Paris, France,* ***7.*** *CHU Estaing, Clermont-Ferrand, France,* ***8.*** *Hôpital Antoine Béclère, Clamart, France,* ***9.*** *La Rochelle Hosp., La Rochelle, France,* ***10.*** *Caremeau Univ. Hosp., Nîmes, France,* ***11.*** *CHU de Poitiers, Poitiers, France,* ***12.*** *Univ. Hosp. Jeanne de Flandre, Lille, France*

ANATOMICAL AND FUNCTIONAL OUTCOMES OF VAGINAL MESH SURGERY VERSUS LAPAROSCOPIC SACROCOLPOHYSTEROPEXY FOR CYSTOCELE REPAIR: 12-MONTH RESULTS OF THE PROSPERE (PROSTHETIC PELVIC FLOOR REPAIR) RANDOMISED CONTROLLED TRIAL.

Hypothesis / aims of study

Cystocele is a frequent and sometimes disabling type of pelvic organ prolapse (POP) in women. Sacrocolpohysteropexy using synthetic mesh is considered as the surgical gold standard, and the laparoscopic approach (LSC) has supplanted the open abdominal route because it offers the same anatomical results with lower morbidity. The use of mesh during vaginal repair (VRM) may have many advantages: easiness to perform, shorter operative time and recovery [1]. At the present time only one RCT has compared LSC and VRM: the results were in favour of LSC in terms of anatomical results, but it was a single-site study with only 2 surgeons (consultant and fellow urogynaecologist) that may limit the generalisability of the findings [2]. Both the French HAS (Haute Autorité de Santé) and the UK Department of Health have highlighted the need for a comparative study to properly evaluate the risk and benefit ratio of surgery including mesh procedures. A French national multicentre randomised study, including centres with experience of both the vaginal and laparoscopic approach, was designed for comparison of the safety, functional and anatomical results of these approaches. We present here the results of functional and anatomical outcomes at one year.

Study design, materials and methods

PROSPERE RCT is a randomised multicentre controlled trial conducted in 12 participating French hospital referral centres for pelvic reconstructive surgery. Inclusion criteria were: patients aged 45 to 75 years old, with cystocele ≥ stage 2 of the POP-Q classification. Exclusion criteria were a previous surgical POP repair, and inability or contra-indication for one or the other technique.

Both LSC and VRM surgery were standardised using a consensus Delphi method. For LSC, the mesh had to be fixed to the promontory by stitches; peritonisation of the mesh was mandatory. For vaginal repair, the mesh had to be suspended by four arms, and treatment of apical prolapse was systematically associated. Hysterectomy was optional, and performed at the discretion of the operator and the patient. The placement of a posterior mesh was left to the operator's choice. The concomitant treatment of urinary incontinence was based on a standardised decision grid including the patient's symptoms, stress test manoeuvres and the patient's choice, using sub-urethral synthetic sling when performed. Manufacturers of mesh kits did not provide the products used in this trial and had no involvement in the study design nor funding.

Post-operative Site-specific POP-Q measurements were performed by independent observers blinded to the randomisation group. Functional outcomes were assessed using patient-administered French validated questionnaires (PFDI-20, ICIQ-SF, PFIQ7, EQ-5D; and PISQ-IR). POP-Q measurement and questionnaires were used at enrolment and at each follow-up visit (6 weeks, 6 months, 12 months).

Intention-to-treat analyses were performed. Categorical endpoints were analysed using Fisher's exact test, continuous endpoints were evaluated using analysis of covariance (ANCOVA), with group and baseline values for the dependent variable entered as independent variables in a model.

Results

Between October 2012 and April 2014, 925 patients were assessed for eligibility, and 663 were excluded (332 did not meet inclusion criteria, 208 declined to participate, study not proposed in 175 cases) leaving 262 patients randomised in the study (n = 130 in the LSC and n = 132 in the VRM group). After randomisation, 1 patient in the LSC and 4 in the VRM group declined to participate. There was no loss to follow-up during the study period, leaving 129 in the LSC and 128 in the VRM group for analysis. The groups were comparable in terms of age, BMI, number of deliveries, menopausal status, hormonal replacement therapy, smoking, previous hysterectomy and previous stress urinary incontinence surgery. The groups were similar concerning extent of prolapse at POP-Q sites (stage 2: LSC 24.6%, VRM 19.7%; stage 3: LSC 70.8%, VRM 68.9%; stage 4: LSC 4.6%, VRM 11.4%). There was no difference in the rate of pre-operative sexually active patients (LSC n=80 (61.5%), VRM n=71(53.8%), p=0,204). The interventions were carried out by 31 different surgeons. In the LSC group, there was 1 conversion to laparotomy and 7 (5%) to vaginal surgery, but in all of them an anterior mesh was placed. An anterior mesh was placed in 126 (98%) patients in the VRM group. The rates of hysterectomy and SUI surgery were respectively 14.0% and 37.2% in the LSC, and 12.1% and 26.6% in the VRM group (p=NS). The rate of placement of a posterior mesh was 87.6% in the LSC group and 22.7% in the VRM group (p>0.001).

At 12 months follow-up, there was a significant reduction in the extent of prolapse at POP-Q sites, including Aa, Ba, C, Bp, and Ap in both groups as compared with preoperative assessment. There was also a significant and important improvement in symptom severity and quality of life scores. There was no difference for anatomical results between the 2 groups (Table) except for point C (mean position LSC -62mm +/-18 vs. VM -54mm +/-25 , t test =-3.108, p=0.002). Five patients of the VRM group did not have fixation of the apex, but for these patients at 12 months point C was above -50 mm.

We found no difference concerning symptoms, quality of life, improvement (PFDI-20, PFIQ-7, ICIQ-SF, EQ5D, PGI-I) and in the Barber score [3]. There was no difference in the rate of patients still sexually active at one year (LSC = 87.2% vs. VRM = 88.1%), but the rate of dyspareunia was lower after LSC (14.1%) than after VRM (29.5%, p = 0.031), as was the rate of de novo or worsening of dyspareunia (8.5% vs. 19.7%, p = 0.061). At 12 months, there was a significant difference in favour of VRM regarding the Obstructed Defecation Score (ODS) at 12 months (see Table), however the difference was no longer significant when adjusted for posterior mesh placement (p=0.167).

Outcome Measure	**LSC group n/N (%)**	**VRM group n/N (%)**	**OR [95% CI]**
No. with Point Ba < -10 mm	73/127 (57.5)	75/127 (59.1)	0.94 [0.57-1.54]
No. with Point C < -10 mm	125/127 (98.4)	114/126 (90.5)	6.58 [1.44 - 30.03]
No. with Point Bp < -10 mm	106/127 (83.5)	102/127 (80.3)	1.24 [0.65-2.35]
No. Prolapse stage 0 or 1	59/127 (53.5)	59/127 (53.5)	1.00 (0.61 - 1.64)
Barber score	109/127 (85.8)	112/127 (88.2)	0.81 (0.39 – 1.69)
No. with Symptom of vaginal bulge	118/128 (92.2)	122/127 (96.1)	0.48 (0.16 - 1.46)
No. of patients still sexually active	67/78 (87.2)	59/67 (88.1)	0.92 (0.34 - 2.49)
No. with Dyspareunia	7/68(10.3)	16/59 (27.1)	0.308 (0.12 – 0.81)
No. with Improvement (PGI-I)	117/128 (91.4)	111/127 (87.4)	1.53 (0.68 – 3.45)
	Mean (95% CI)	**mean (95% CI)**	**mean difference [95% CI]***
PFDI score	25.0 (20.0-29.9)	26.1 (21.2 -31.1)	-1.14 (-8.16 - 5.88)
POPDI subscale	5.7 (3.9- 7.6)	6.5 (4.7- 8.4)	-0.80 (-3.41 - 1.81)
DDI-8 subscale	11.1 (9.2 - 13.1)	9.2 (7.3 - 11.2)	1.92 (-0.82 - 4.67)
UDI subscale	8.3 (5.9 - 10.6)	10.4 (8.1 - 12.8)	-2.15 (-5.49 - 1.19)
PFIQ-7 score	6.1 (2.9- 9.3)	9.8 (6.6 – 13.1)	-3.74 (-8.29 – 0.82)
EuroQoL5D scale	82.4 (76.7 - 85.1)	81.9 (79.2 - 84.7)	0.48 (-3.37 - 4.34)
FSFI score for sexually active patients	27.4 (26.1 - 28.8)	26.8 (25.4 - 28.2)	0.63 (-1.36 - 2.61)
ICIQ-UI SF score (0-21)	1.7 (1.1- 2.3)	2.2 (1.6 - 2.8)	-0.48 (-1.33 - 0.36)
ODS score	4.8 (4.2 to 5.5)	3.9 (3.2 to 4.6)	0.94 (0.01 to 1.89)

*mean difference between the laparoscopy group and the mesh-repair group on the basis of the analysis of covariance model. CI denotes confidence interval.

Interpretation of results

This study was a pragmatic multicentre RCT with operators experienced in both surgical approaches. At 12 months follow-up, anatomical results show minimal and non-significant discrepancies in site-specific evaluations except for point C, but this does not seem to have a clinical significance as the Barber score is not different. Since this difference was not due to an absence of apical fixation in the VRM group, it might relate to a differential effect of the MESH on the apex, for the group treated vaginally.
There was a significant improvement in functional symptoms and quality of life after surgery, with no difference between groups, except for the dyspareunia rate among the patients who were still sexually active postoperatively. In this subgroup of patients dyspareunia was more frequently reported among patients operated vaginally. The obstructed defecation dysfunction observed after LSC relates to the posterior mesh placement and not to the LSC approach.

Concluding message

LSC and VRM provide similar improvement of anatomical and functional results at one-year follow-up with a high level of satisfaction, Due to a lower rate of postoperative dyspareunia and de novo dyspareunia, LSC should be favoured in sexually active patients. This study helps to clarify the respective indications for LSC and VRM in patients with bothersome cystocele.

References

1. 1. Maher C, Feiner B, Baessler K, Schmid C. Surgical management of pelvic organ prolapse in women. Cochrane Database of Systematic Reviews 2013, Issue 4. Art. No.: CD004014. DOI: 10.1002/14651858.CD004014.pub5.
2. Maher CF, Feiner B, DeCuyper EM, Nichlos CJ, Hickey KV, O'Rourke P. Laparoscopic sacral colpopexy versus total vaginal mesh for vaginal vault prolapse: a randomized trial. Am J Obstet Gynecol. 2011;204(4):360 e1-7
3. 3. Barber MD, Brubaker L, Nygaard I, Wheeler TL 2nd, Schaffer J, Chen Z, Spino C; Pelvic Floor Disorders Network. Defining success after surgery for pelvic organ prolapse. Obstet Gynecol. 2009 Sep;114(3):600-9. doi: 10.1097/AOG.0b013e3181b2b1ae

Disclosures

Funding: The study was funded by a grant from the French Ministry of Health (PHRC 2011/1921) without any support or involvement of any manufacturer of mesh. **Clinical Trial:** Yes **Registration Number:** The trial was registered in ClinicalTrials.gov registry (NCT01637441) and the French safety agency (AFSSAPS B111368-30) **RCT:** Yes **Subjects:** HUMAN **Ethics Committee:** The study protocol was approved by the IVth ethical research committee of Nord-Ouest (Lille), France **Helsinki:** Yes **Informed Consent:** Yes