943

Pardo J[1], Solà V[1], Ricci P[1]
1. *Clínica Las Condes*

INDIGO CARMIN TEST TO VERIFY THE URETERAL INDEMNITY AFTER MCCALL CULDOPLASTY IN THE PREVENTION OF PROLAPSE AFTER HYSTERECTOMY.

Hypothesis / aims of study

The hysterectomy surgery is a risk factor for a future prolapse. The McCall culdoplasty is a highly successful procedure in maintaining proper anatomic support of the vaginal cuff after hysterectomy.[1] The McCall culdoplasty involves the placement of 3 sutures (2 permanent internal sutures and 1 external delayed absorbable suture). A Prolene is placed through the uterosacral ligaments and the peritoneum of the cul-de-sac. The second suture is placed in the same way one centimetre above and parallel to the previous stitch. Sutures are kept to be tied after placement of the external suture. The external McCall suture with Vycril is then placed through the posterior vaginal wall and peritoneum. This suture is then brought back out through the vagina. First, the internal McCall sutures are tied and then the external suture is tied.[2] These sutures provide good support to the vaginal cuff but are a risk to obstruct the ureters that may remain unknown. This could mean the loss of a kidney.

We hypothesise that the indigo carmin test should enable us to identify cases where McCall sutures may obstruct the ureters.

This study aims to determine the utility of the indigo carmine test to identify potential ureteral obstruction after McCall culdoplasty for prevention of prolapse after hysterectomy.

Study design, materials and methods

Prospective study with 200 consecutive women admitted for vaginal or laparoscopic total hysterectomy, for benign causes, at Urogynecology Unit, Clínica Las Condes, Santiago, Chile. The range of age was 38 and 77 years old. The study was between January 2003 and January 2010.

In all women after hysterectomy a culdoplasty type McCall was realized in order to prevent future prolapse. After, intravenous indigo carmine was administered. In all cases a routinely cystoscopy was realized in order to identify the output of indigo carmine through the ureteral meatus into the bladder. The indigo carmine is observed like blue colorant spill. A positive test was considered which indigo carmine was observed and was interpreted as ureteral indemnity. Negative test was considered when the indigo carmine not was observed and this was considered like ureteral obstruction proceeding to drop the sutures. In these cases after removing the sutures a second test of indigo carmine was performed to verify the ureteral indemnity.

[Figure]

Results

The test was negative (absent ureteral blue colorant spill) determining ureteral obstruction in 2 cases (1%). The sutures of the McCall culdoplasty were removed and after the second test demonstrated ureteral indemnity observing indigo carmine spill through the ureteral meatus into the bladder.

Interpretation of results

In our series the incidence of ureteral obstruction was 1%. Between 0.3 and 11% of surgeries in the pelvic floor could cause obstruction of one or both ureters.

The indigo carmine test visualized with cystoscopy is a simple test that may prevent the loss of a kidney due to a complication during culdoplasty. This test allows for immediate recognition and easier intraoperative treatment of the lower urinary tract injuries. A simple suture removal relieved ureteral obstruction in both cases.

The indigo carmine test visualized during cystoscopy must be a routinely procedure in surgeries which sutures are a risk for ureteral obstruction. Unrecognized ureteral injury are known source of morbidity and mortality in gynaecologic, urogynecologic and pelvic floor surgeries.[3] In addition, the routinely cystoscopy will allows us to identify unsuspected bladder injuries resulting from these surgeries.

Concluding message

Intraoperative indigo carmine test visualized with cystoscopy is a safe and effectiveness technique that can detect otherwise undetected ureteral obstruction during McCall culdoplasty surgery to prevent prolapse after hysterectomy. It is recommended that indigo carmine test be used routinely to reduce the frequency of ureteral obstruction and kidney loss.

References

1. Montella JM, Morrill MY. Effectiveness of the McCall culdeplasty in maintaining support after vaginal hysterectomy. Int Urogynecol J Pelvic Floor Dysfunct.2005;16(3):226-229.
2. Ricci P, Solà V, Pardo J, Guiloff E. Laparoscopic McCall culdoplasty. J Minim Invasive Gynecol.2007;14(4):397-398.
3. Jabs CF, Drutz HP. The role of intraoperative cystoscopy in prolapse and incontinence surgery. Am J Obstet Gynecol.2001;185(6):1368-1371.

Specify source of funding or grant	**Clínica Las Condes**
Is this a clinical trial?	**No**
What were the subjects in the study?	**HUMAN**
Was this study approved by an ethics committee?	**Yes**
Specify Name of Ethics Committee	**Commitee Clínica Las Condes**
Was the Declaration of Helsinki followed?	**Yes**
Was informed consent obtained from the patients?	**Yes**