

# Use of Dye in Hydrocelectomy for Congenital Hydrocele with Narrow Communicating Tract

Young Soo Kim, Do Young Chung and Se Joong Kim

Department of Urology, Ajou University School of Medicine, Suwon, Korea

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A technique is described that facilitates to identify and dissect the narrow communicating tract of the hernial sac in hydrocelectomy for communicating hydrocele. This method utilizes the blue dye that is injected into the distal sac and stains along the communicating tract so as to be identified without difficulty. We have used this technique on 10 difficult cases, which were extremely narrow or obliterated communicating tract and got the good results.

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**Key Words:** Communicating hydrocele, Hydrocelectomy, Dye

## INTRODUCTION

In general, dissection and ligation of the hernial sac in the operation for congenital hydrocele are quite simple and easy. Sometimes, however, it may be hard to find out or to dissect the communicating tract from the cord structure especially when it is extremely narrow or even absent. We have developed a simple method for identification of the communicating tract in hydrocelectomy for the congenital hydrocele with such a narrow or uncertain communicating tract during an operative procedure by staining the hernial sac with an injection of blue dye into the hernial sac.

## MATERIAL AND METHODS

In ten children with congenital hydrocele having some difficulties to identify or dissect the communicating tract from the spermatic cord, we applied this technique.

The spermatic cord was mobilized, the scrotal inlet was enlarged and the main sac with testis was delivered into the operative field by ordinary inguinal approach. An injection of

0.1~0.5 ml methylene blue or indigo carmine solution into the cavity of the distal portion of hydrocele sac via 23~26 gauge butterfly needle was given and followed by prompt covering of the injection site with small gauze not to leak out. In seconds or minutes the communicating tract would be appeared in blue color and then the dissection and ligation of the communicating tract were proceeded as the usual method. If the hydrocele sac was so tense that the leak of dyed hydrocele fluid is anticipated, aspiration of some hydrocele fluid before injecting the dye would be advisable. During the procedure it was extremely important not to spill the dye out which could subsequently spoil the operative field.

## RESULTS

All procedures were completed without difficulties and had successful results. Three out of all ten cases had a fine hair-thick communicating tract respectively, which was thought retrospectively to be extremely hard to find out. Six cases had 1~2 mm thick communicating tract and also could be facilitated in the identification and dissection by this procedure. One case had completely obstructed communicating tract and could also be assured by this method.

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**Reprint requests to:** Department of Urology University of Ajou Medical Center San 5, Wonchon-dong, Paldal-gu Suwon 442-749, Korea Tel (0331) 219-5586 Fax (0331) 219-5276

## DISCUSSION

Communicating hydrocele of infancy and childhood is caused by a patent processus vaginalis, which is continuous with the peritoneal cavity<sup>1-4</sup>. The hydrocele sac (processus vaginalis) is almost always communicated to the peritoneal cavity via communicating tract which is the proximal portion of the sac. This patent processus vaginalis lies on the upper outer aspect of the cord and most of them could easily be identified by the careful dissection<sup>2,4,5</sup>. Sometimes, however, the communicating processus is barely visible and may appear to be only a fibrous stalk and it may be hard to find out or to dissect it from the cord structure<sup>3</sup>. In infants and small children, loupes or other optical magnification may be helpful during dissection. If the communicating tract is difficult to identify, surgeon usually focuses attention on the internal ring and identify the peritoneum and identify the peritoneum and can identify the sac at its point of origin before it thins out<sup>2</sup>.

Methylene blue and indigo carmine have been used in urologic fields usually for identifying the ureteral orifices at the time of cystoscopy or the ureters during open surgery by intravenous injection<sup>6</sup>. We have thought that infusion of these blue dyes into the hydrocele sac could also stain the fine communicating tract and facilitate the procedure. The use of blue dye could also facilitate the dissection from the spermatic cord and lessen the possible damage to the spermatic cord structures. As a matter of fact, we have used this method with good result for the congenital hydrocele with narrow communicating tract difficult to identify or to dissect. No untoward reactions have occurred in our experiences.

## CONCLUSION

Infusion of blue dye (methylene blue or indigo carmine) into the hydrocele sac so as to stain the hernial sac facilitates the identification and dissection of the communicating tract from the spermatic cord structures especially when it is not identified easily. This method would also be helpful for assuring the proper ligation of the communicating tract or the obliteration of the processus vaginalis as in some of the cord hydroceles.

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