A Simple Technique of Trocar Fixation During Pediatric Laparoscopy with Foley Catheter Sleeve

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Abstract We describe a simple method of fixing trocars to the abdominal wall in infants and children using small pieces of 16- or 18-Fr Foley catheter as a sleeve over the trocar. The sleeve holds the trocar snugly and is fixed to the skin with silk stitch. This technique is simple, quick, efficacious, and inexpensive, and it does not require any special equipment and can be used with any trocar size.

Keywords Laparoscopy · Pediatric · Trocar · Foley catheter · Sleeve

Introduction

Trocar instability during pediatric laparoscopy is a common problem, especially in small infants. Current methods used to prevent trocar displacement have some limitations. We present a simple method of trocar fixation during pediatric laparoscopy, using the commonly available materials in any operating room.

Technique

In this technique, small pieces (about 1.5–2 cm long) of 16- or 18-Fr Foley catheter are prepared (Fig. 1) and used as a sleeve over the trocar. Because the sleeve is elastic, it snugly fits both 3- and 5-mm trocars used in pediatric laparoscopy. This sleeve is adjusted at the required position on the trocar.

The sleeve is fixed to the skin with a 3/0 silk stitch (Fig. 2). This technique has been used by us for many laparoscopic procedures in infants and children without any problems.

Discussion

Proper trocar fixation is a very important step to avoid problems during laparoscopic surgery, especially in pediatrics, as the lax abdominal wall in infants and children may not hold the trocars firmly. Trocar displacement during the operation may lead to complications such as air leakage, loss of vision, instrument clashing, and many other problems. The repeated insertion of trocar through the same incision may produce multiple tracts and widening of the incision, further compounding the problem.

Various methods have already been described for the prevention of trocar displacement in pediatric laparoscopy [1–5]. We do not prefer to use adhesive tapes [1, 2] because

Fig. 1 Small pieces of trocar sleeves being cut from a Foley catheter

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Fig. 2 Small infant undergoing laparoscopic fundoplication. The three important trocars (two 5 mm and one 3 mm) are fixed with Foley catheter sleeves

they may impregnate the instruments and stick to the gloves. Millan et al. [4] described a plastic seal tightened with a plastic seal-fastening device. However, the plastic seal requires to be sterilized separately before use. Hasson trocars have large diameters precluding their use in small children, whereas radially expanding trocars [5] are disposable and costly. Metzelder and Ure [3] described the use of a rubber catheter or sleeve (Red Robinson catheter) that is

fixed through the skin and fascia. However, these sleeves may be difficult to insert because of their large outer diameter, particularly in small infants. Furthermore, different sizes of catheter may be required to find the best-suited rubber catheter size for each trocar size and brand. Our technique has several advantages: It uses a simple Foley catheter that is readily available in any operating room. The Foley catheter comes in a sterile pack, is cheap and elastic, and snugly fixes as a sleeve over any size of trocar.

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