
Procedures in Family Practice

Suprapubic Bladder Needle Aspiration in Infants and Children

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Suprapubic needle aspiration of the bladder represents an excellent alternative to urethral catheterization to document bladder bacteriuria. Specific indications include documentation of bacteriuria in infants, in uncircumcised male children, in myelodysplastic children, and in children with abnormal genitalia.

Management of bacteriuria in children requires confirmation that the source of bacteria is the bladder rather than a contaminant. Sites of contamination are vaginal washout in the female, and prepucial washout in the uncircumcised male. The importance of establishing bacteriuria is not only because it requires treatment, but also because of the indication for radiologic evaluation of modest expense. Thus, documentation of bladder bacteriuria rather than urine contamination is vital.

Methods of Documentation of Bacteriuria

Three consecutive early morning midstream, clean catch specimens, all of which grow the same bacteria, have a very high correlation with bladder bacteriuria, probably at a 95 percent confidence level.¹ The principle advantage of this method is that it is noninvasive. The disadvantages are the logistics of obtaining three consecutive early morning specimens, the cost of these cultures, and the confusion which arises with mixed cultures, or when less than all three cultures are positive.

A second method frequently used to document bladder bacteriuria is urethral catheterization. The advantage of this method is that any growth on

culture correlates exceedingly well with bladder bacteriuria. The disadvantages are that the urethra may be traumatized, complicating the bacteriuria. Additionally, the procedure is time consuming and frightening to the child. In male children, repeated catheterization may lead to stricture formation.

The third method to document bladder bacteriuria is suprapubic aspiration with a needle puncture.² The advantage of this method is, as in the catheterized specimen, any growth on culture represents bladder bacteriuria, and should be treated and evaluated. The procedure takes less time to do than urethral catheterization, and there is less chance of a contaminated specimen. It may be argued that it is less painful than catheterizing the inflamed urethra, though this represents bias more than fact. The disadvantage is primarily a psychological one; parents and children are adverse to the thought of placing a needle in the bladder. Pain is primarily at a skin level, and should be no more than in venipuncture. Another disadvantage is that one may not be able to obtain urine from a bladder that is small or partially filled. In the authors' experience, suprapubic tap works quite well when used with specific indications.

Indications for Suprapubic Bladder Aspiration

Suprapubic bladder aspiration is best used in infants and small children where the bladder is

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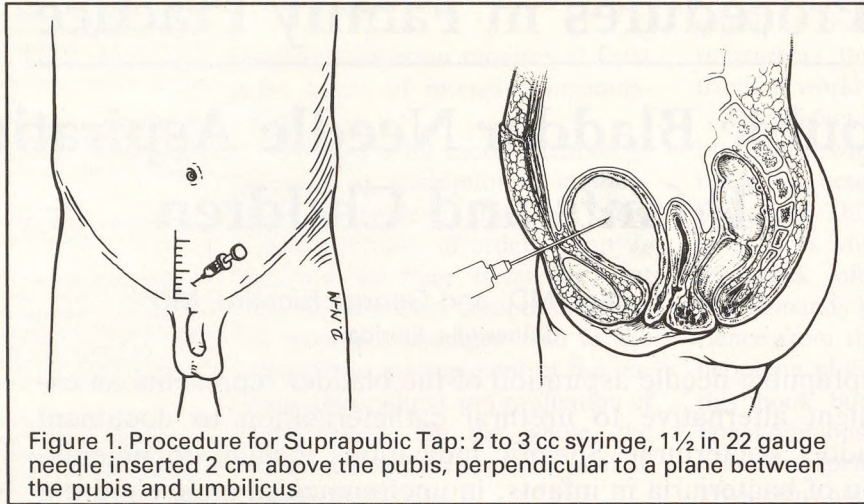


Figure 1. Procedure for Suprapubic Tap: 2 to 3 cc syringe, 1½ in 22 gauge needle inserted 2 cm above the pubis, perpendicular to a plane between the pubis and umbilicus

clearly intraabdominal. As children mature, the bladder assumes a pelvic location and suprapubic aspiration is more difficult. Older children and adults also dislike the concept of needle puncture, and cooperation is difficult.

Children and adults with myelodysplasia or other neurologic lesions which result in a flaccid bladder, are excellent candidates for suprapubic aspiration. Most of these patients have loss of cutaneous sensation making the procedure pain-free. In addition, these patients have distended bladders which are easy to palpate and puncture.

A third group in which suprapubic aspiration is indicated is in uncircumcised males who cannot have the foreskin retracted. Clean voided specimens in this group will usually be contaminated and the meatus may be difficult to locate for urethral catheterization.

The last group of children with specific indications are those with abnormal genitalia, such that catheterization is difficult or contraindicated. Children in this group may include ones with severe urethral stricture, hypospadias, cloacogenic or urogenital sinus abnormalities, and in epispadias.

Procedure

The bladder must be palpable to perform suprapubic bladder aspiration. If the bladder is not palpable, fluids should be given so that it will be. The lower abdomen can be prepared with an alco-

hol sponge, as for venipuncture. Gloves and elaborate preparation are not necessary. Using a 2 to 3 cc syringe, and a 1½ inch 22 gauge needle, the needle is introduced approximately 2 cm above the pubis in the midline to a depth of approximately 1½ to 3 cm. The axis of entry should be perpendicular to the plane between the pubis and umbilicus. Usually one can feel a decreased resistance once the bladder is entered. If the bladder is not easily punctured in one or two attempts, the procedure is abandoned. After withdrawing the needle, the area is cleansed with the alcohol sponge (Figure 1). Accidental entry into the peritoneal cavity or the bowel should be of little consequence.

Complications

Complications should be minimal if the procedure is performed properly. Occasional patients will have gross or microscopic hematuria. With brisk diuresis from forcing fluids, the hematuria will usually clear. Theoretically, infection could be introduced into the perivesical tissues, although in the authors' experience, this has not occurred.³

References

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