Operative cystoscopy in the neonatal period

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Abstract

Aim of the study is to report the experience in the last three years about endourological treatment of newborns affected by genito- and urinary malformation, implying critical urinary tract dilatation and bladder mass requiring a neonatal operative management. Seven – four males and three female – patients were treated cystoscopically during the neonatal period. Three newborns with a posterior urethral valves (PUV), underwent a successful ablation of PUV. In a male with infected persistent large mullerian duct and subsequent acute urinary retention, a cystoscopically-assisted catheterization was performed. Two females, one with cloaca and the other with high persistent urogenital sinus and massive associated hydrometrocolpos underwent a cystoscopical drainage of the vagina and a positioning of a balloon catheter into the bladder. Another female with a bladder mass had an endourological biopsy. Thanks to modern neonatal operative urethrocystoscope, today is possible to treat early many pathological genito-urinary conditions in newborns.

Introduction

The coming of prenatal ultrasonography modified the approach to the genito-urinary malformations, allowing their early diagnosis and treatment and reducing the associated morbidity. Prenatal diagnosis includes dilatative genito-urinary tract malformation and, even if rarely, urinary masses. Aim of the study is to report our experience in the last three years about the endourological treatment of newborns affected by genito-urinary malformation implying critical urinary tract dilatation and by bladder mass requiring a neonatal operative management.

Case Report

During the period between 2013 and 2015, seven patients were treated cystoscopically during the neonatal period, four males and three females. All cystoscopies were performed with a 8/9.5 operative urethrocystoscope.

Three newborns have a prenatal diagnosis of megabadder, severe urinary tract dilatation and urinary retention. At birth, an indwelling catheter was positioned in the bladder. A voiding urethrocystogram documented in all cases posterior urethral valves (PUV) with high grade vesico-ureteral reflux in two cases. After 7-12 days, patients underwent ablation of posterior urethral valves (Figure 1). During post-operative period, newborns showed a good patency of the urethra resolving the acute urinary retention.

One female neonate, with prenatal diagnosis of hydrometrocolpos with transverse vaginal septum, fetal ascites and severe upper urinary dilatation, registered respiratory distress secondary to massive abdominal distention. After radiological confirmation of a cloaca, a cystoscopic drainage of the vaginas was performed and a balloon catheter was introduced into the bladder on guide-wire (Figure 2).

In the immediate post-operative period, the patients had a quick resolution of upper urinary dilatation and a recovery of the general medical conditions.

A male displayed feminization of external genitalia, scrotal hypospadias, bilateral palpable descended testes, fever and acute urinary retention. After an unsuccessful attempt of catheterization, we performed a cystoscopy that showed a large infected persistent mullerian duct. An endoscopic drainage of the abscess was done and a tip opened Foley catheter was passed after introduction of a guide-wire resolving the acute urinary retention.

A female was referred at our institution for rectal bleeding. An abdominal ultrasonography showed a bladder mass. For this reason, a cystoscopy was done showing a bunch of grapes bladder tumor, macroscopically similar to a vesical rhabdomyosarcoma. An endoscopical biopsy (Figure 4) was performed and histological examination excluded a malignant origin of the tumor (it was a polyposes cystis).
Discussion

Thanks to modern neonatal operative urethrocytroscope, today it is possible to treat early many pathological conditions implying a severe upper urinary tract dilatation, hydrocolpos with ascites or requiring a rapid diagnosis for the suspected malignant origin. In cases of PUV with neonatal onset, an alternative to neonatal endourological primary valve ablation is the vesicostomy, an invasive and poorly accepted by patients and parents procedure.4,5 Persistent mullerian duct syndrome is a rare form of internal male pseudohermaphroditism in which Mullerian duct derivatives are seen in a karyotypically male patients.6,7 This duct, originated by an anomaly in sexual differentiation, can have large size and to predispose to urinary infection with acute urinary retention.7

Conclusions

Fetal ascites can occur due to many heterogeneous disorders. Its association with hydrometrocolpos owing to persistent urogenital sinus and cloaca is extremely rare. Fetal ascites in these cases was due to fetal urine draining through fallopian tubes into the abdomen as a result of vesico-vaginal fistula and distal vaginal atresia.8-10 Endoscopical drainage of internal genitalia allows an urgent mini invasive decompression of the hydrometrocolpos and of the upper urinary tract dilatation, thus to permit a recovery of the general conditions of the female neonated, allowing, by the way, a detailed study of these complex abnormalities. Last but not least, neonatal diagnostic/operative cystoscopy permits a mini-invasive diagnosis in the very rare neonatal bladder mass.11 All this is possible for the miniaturization of the neonatal endourological instrumentation and by experience of the pediatric urologists, making it possible to work safely and with small babies’ minimal discomfort.

References