IS-5  Early Bladder Wall Changes after Creation of Obstructive Uropathy in the Fetal Lamb

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Purpose: Vesico-amniotic shunting of obstructive uropathy in fetal lambs resulted in a thick-walled, poorly compliant bladder. We report the early histological changes in the obstructed bladder wall. Method: We created an obstructive uropathy in fetal lambs at 60 days gestation by ligation the urethra or bladder neck and urachus. Vescicostomy or vesico-amniotic shunt tube insertion and biopsy the bladder wall were performed at 21 days after obstruction. The fetuses were delivered at term (145 days), the kidneys and bladder were sampled for histology. Colloidal Fe, and alpha-smooth muscle actin (alpha-SMA) immuno histochemical stains were used for these samples. Results: Seventeen fetuses were shunted with fifteen biopsies taken at that time. Six were excluded because of shunt failure or missed urachal ligation. All biopsy samples taken at shunting had positive colloidal Fe and alpha-SMA. Term lambs had mild MCDK (multicystic Dysplastic kidney) in 5, severe MCDK in 2, and hydronephrosis in 4. All bladders were small volume, with a severely fibrotic bladder wall. Conclusion: Fetal shunt operations after obstructive uropathy three weeks after obstruction provide partial preservation of renal histology but fail to preserve normal bladder histology. This suggests that the dilated fetal bladder had high hyaluronic acid synthesis activity or hyperplasia of the myofibroblasts.