732

Ichino M[1], Igawa Y[2], Ishizuka O[1], Nishizawa O[1]
1. *Department of urology Shinshu-university school of medicine,* ***2.*** *Department of Continence Medicine The University of Tokyo Graduate School of Medicine*

LOWER URINARY TRACT DYSFUNCTION OF SPINAL LIPOMA- PERIODICAL MONITORING AND COOPERATION BETWEEN THE DEPARTMENTS

Hypothesis / aims of study

Spinal lipoma patients often show lower urinary tract (LUTD) dysfunction that can worsen over time and affect outcome. Therefore, early detection and management of LUTD may be beneficial to improve the surgical result of spinal lipoma as well as urinary tract function. Here, we regularly evaluated lower urinary tract function in spinal lipoma cases to detect LUTD at an asymptomatic to early stage, leading to prompt surgical intervention for spinal lipoma or tethered cord syndrome.

Study design, materials and methods

We retrospectively reviewed the medical records of 52 spinal lipoma cases whose lower urinary tract function was periodically evaluated by video-urodynamic study (V-UDS). Patients who were asymptomatic for LUTD but nonetheless monitored for signs of lower urinary tract dysfunction were defined as the asymptomatic group. Patients who showed lower urinary tract symptoms or episodes of urinary tract infection (UTI) were classified as the symptomatic group. Patients were followed by history taking, urinary analysis, ultrasound of the kidneys and urinary tract, and uroflowmetry. V-UDS was performed at the first examination and was repeated when results of check-ups changed. Patients who showed urodynamic risk factors, including low compliance bladder, high detrusor leak point pressure (>40 cmH_2O), existence of detrusor sphincter dyssynergia (DSD), or large amounts of residual urine, were considered as high-risk for upper urinary tract dysfunction. Clean intermittent catheterization (CIC) was introduced immediately for these cases unless a severely incompetent urethral closure mechanism was concomitantly detected. When urodynamic results indicated a low compliance bladder or detrusor overactivity (DO), anticholinergic agents were administered. All urodynamic results were reported to neurosurgeons for treatment of spinal lipoma. Patients undergoing surgery for spinal lipoma or tethered cord syndrome were reexamined for lower urinary tract function by V-UDS 3 months afterwards.

Results

Of the 52 (24 male) patients studied, 35 (14 male) patients aged a mean of nine (range, 0-32) months were classified into the asymptomatic group. Seventeen (10 male) patients aged a mean of 13.4 (range, 0.4-50) years had symptoms of urinary incontinence (53%), voiding symptoms (24%), UTI (18%), and nocturnal enuresis (6%). Forty-two percent of the asymptomatic group and 35% of the symptomatic group had undergone surgery for spinal lipoma or tethered cord prior to their first visit.

Table 1 shows the results of the first and last lower urinary tract evaluations in each group. In the first V-UDS of the asymptomatic group, 3 (9%) patients were classified as high-risk for upper urinary tract dysfunction. A total of 24 (68%) cases had normal lower urinary tract function. LUTD occurred in 6 of them during follow-up when they were a mean of 4.3 (range, 1.5-10.4) years old.

In the symptomatic group, 71% patients were classified as high-risk for upper urinary tract dysfunction. Hydronephrosis was observed in 24% of cases at their first evaluation.

Table 1.

	Asymptomatic		Symptomatic	
Number of patients	35		17	
	First examination	Last evaluation	First examination	Last evaluation
Mean age at the first V-UDS (years)	0.9 (range, 0-2.7)	8.2 (range, 0.2-17)	13.4 (range, 0.4-50)	20.5 (range, 4.8-58)
Normal lower urinary tract function	24 (68%)	20 (57%)	1 (6%)	1 (6%)
High risk for upper urinary tract	3 (9%)	9 (25%)	12 (71%)	13 (76%)
Managed with CIC	0 (0%)	7 (20%)	0 (0%)	14 (82%)
VUR	7 (20%)	4 (11%)	5 (19%)	4 (24)
Hydronephrosis	0(0%)	0(0%)	4 (24%)	4 (24%)

A total of 22 patients underwent surgery for spinal lipoma or tethered cord syndrome during follow-up. Lower urinary tract function before and after surgery is shown in Table 2. Of the 7 patients with LUTD in the asymptomatic group, LUTD improved in 4 patients (DO 1, DSD 2, weak detrusor 1), but progressed in 2 following surgery. Lower urinary tract function did not change in the 10 patients with a normal lower urinary tract. In the symptomatic group, 5 patients underwent surgery, but no lower urinary tract function changes were observed.

Table 2.

	Before	After
Asymptomatic	without LUTD 10	no change (without LUTD) 10
	with LUTD 7	improved (without LUTD) 4
		no change (with LUTD) 1

		progression (with LUTD) 2
Symptomatic	with LUTD 5	no change (with LUTD) 5

Lastly, 57% of the asymptomatic group and 6% of the symptomatic group had normal lower urinary tract function. CIC was introduced in 20% and 82% of these groups, respectively.

Interpretation of results

LUTD was observed in more than 30% of spinal lipoma patients less than 3 three years old without evident lower part urinary tract symptoms or urinary infection at the time of initial examination. About 10% of these patients showed risk factors for upper urinary tract dysfunction.

During the observation period, lower urinary function deteriorated in 20% patients. After its detection, LUTD improved in about half of patients undergoing surgery for spinal lipoma or tethered cord syndrome. Although the 2 groups could not be directly compared because subject ages were different, our results indicate that prompt intervention is advantageous.

CIC was ultimately introduced to 20% of the asymptomatic group, but no cases of hydronephrosis were found. Conversely, CIC was introduced to 82% of patients in the symptomatic group, who had upper urinary tract dilatation in higher than 20% of cases.

Concluding message

It can be difficult to evaluate changes in lower urinary function from subjective symptoms in patients with spinal lipoma. Once symptoms appear, however, LUTD may have already developed and lead to hydronephrosis. Thus, it is important for clinicians to regularly monitor for LUTD in children with spinal lipoma, even if they are asymptomatic, to ensure timely surgical intervention.

Specify source of funding or grant	**none**
Is this a clinical trial?	**No**
What were the subjects in the study?	**HUMAN**
Was this study approved by an ethics committee?	**No**
This study did not require ethics committee approval because	**this is a part of our daily practice.**
Was the Declaration of Helsinki followed?	**Yes**
Was informed consent obtained from the patients?	**Yes**