AMERICAN ACADEMY OF PEDIATRICS
Section on Urology

Myelomeningocele: Suggested Minimal Urological Evaluation and Surveillance

The birth defect known as myelomeningocele has received a great deal of attention in medical circles during the past several years. With more aggressive early surgical treatment survival has increased.

A method for urological evaluation and follow-up of children with myelomeningocele has evolved independently at several institutions where large numbers of patients are seen. The various plans have great similarity and it is felt that because of this a minimal standard plan for a urological evaluation and surveillance could be recommended to all physicians caring for these patients.

The team approach is probably the best way to manage this very complex problem; however, evaluation may be done on a smaller scale and the plan that is outlined here can certainly be carried out in any up-to-date institution regardless of size.

On initially seeing the patient born with myelomeningocele (hopefully shortly after birth) a complete blood count, baseline blood urea nitrogen, and serum creatinine are obtained, along with a urinalysis and urine for culture and sensitivity. The urine is obtained by one of three methods: namely clean-catch, use of a catheter, or suprapubic aspiration. No one method is advocated as being ideal; it is felt best to adapt the technique to the particular child.

A high-dose intravenous pyelogram is accomplished with as few films as possible. It is often possible to do this study in conjunction with orthopedic or neurosurgical studies.

Cystograms may be done but are not advised as routine. The information gained from careful inspection of the intravenous pyelogram may be all that is needed to correctly evaluate any damage and whether or not reflux exists. It is unfortunate to risk infection by catheterizing a normal urinary bladder if this can be avoided. Cystograms should be done only when the information to be obtained outweighs the risk of infecting a previously sterile urinary tract.

Where urinary tract infections and/or hydronephrosis are a prominent feature of the clinical course, a cystogram is advised to further define the problem and plan treatment.

Following the initial evaluation, further testing is recommended as follows: If the intravenous pyelogram, urinalysis, and/or urine culture are normal, an intravenous pyelogram should be done every year and a urinalysis every six months, as minimal follow-up until age 3. Between age 3 and adolescence an intravenous pyelogram might be done every other year to reduce radiation and cost. If any of these tests are abnormal, the intravenous pyelogram should be done every six months and a urinalysis monthly. Clinical conditions (i.e., persistent infection, presence of known reflux, infancy) may warrant that these tests be done more frequently.

Following a urinary diversion, an intravenous pyelogram should be carried out approximately eight weeks postoperatively, again at six months, and from then on at yearly intervals, assuming that the patient is doing well and more frequently if there is clinical indication.

For an ileal conduit, it is recommended that catheterization of the stoma be carried out approximately eight weeks postoperatively, again at six months, and then on a yearly basis following surgery. This is done to measure residual urine and to obtain a specimen of urine for culture and sensitivity.

A brief note should be made regarding other tests whose value have not yet been definitely substantiated, such as the CO₂ cystometrogram. The measurement of creatinine clearance has
been a rather disappointing test, particularly when performed on an outpatient basis, as the accurate collection of urine is most important. If necessary, it should be done on an inpatient basis. The interpretation of electrical studies of the bladder and the anal sphincter have been unreliable and their prognostic value is questioned at this time.

**DISCUSSION**

The above tests briefly outline those useful in following children born with myelomeningocele. A differentiation is made between those tests which over a number of years have shown their value and those newer studies whose value is yet to be determined. With more years of experience, some of these tests now considered optional may become routine. As children born with myelomeningocele live longer, more problems are going to be recognized and plans for evaluation and surveillance are going to have to be augmented: for example, as these children reach adult age consideration and evaluation of sexual function and performance may be desirable and important.

**SUMMARY**

A brief discussion has been presented regarding minimal urological evaluation and surveillance of the child with myelomeningocele. At the present time enough experience has been collected throughout the country to establish recommendations for minimal evaluation and surveillance. It is recognized that there are some additional testing procedures presently being used of as yet unknown diagnostic or prognostic potential. It is also recognized that if treatment programs change and these children live into adulthood, changes in the program for surveillance may be necessary in later childhood and adult life.

**ACTION COMMITTEE ON MINIMUM NECESSARY SURVEILLANCE OF THE CHILD WITH MYELOMENINGOCELE**

**HERRICK C. RIDLON, M.D., Chairman**
**COLIN MARKLAND, M.D.**
**DUNCAN E. GOVAN, M.D.**
**GUY LEADBETTER, M.D.**
**STUART PRICE, M.D.**
**HARRY SCHOPENBERG, M.D.**
**ALAN D. PERLMUTTER, M.D., Ex officio**

**BIBLIOGRAPHY**

**Books**

**Articles**
Myelomeningocele: Suggested Minimal Urological Evaluation and Surveillance
Herrick C. Ridlon, Colin Markland, Duncan E. Govan, Guy Leadbetter, Stuart Price, Harry Schoenberg and Alan D. Perlmutter

*Pediatrics* 1975;56;477

<table>
<thead>
<tr>
<th>Updated Information &amp; Services</th>
<th>including high resolution figures, can be found at: /content/56/3/477</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permissions &amp; Licensing</td>
<td>Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at: /site/misc/Permissions.xhtml</td>
</tr>
<tr>
<td>Reprints</td>
<td>Information about ordering reprints can be found online: /site/misc/reprints.xhtml</td>
</tr>
</tbody>
</table>
Myelomeningocele: Suggested Minimal Urological Evaluation and Surveillance
Herrick C. Ridlon, Colin Markland, Duncan E. Govan, Guy Leadbetter, Stuart Price, Harry Schoenberg and Alan D. Perlmutter

*Pediatrics* 1975;56;477

The online version of this article, along with updated information and services, is located on the World Wide Web at:

/content/56/3/477