

pain and tenderness disappearing, and within a fortnight the skin had lost its atrophic appearance.

On examination in April, 1934, the healthy, comfortable condition was found to be maintained, and the patient could do her work.

I wish to thank Mr. J. J. Moriarty of the surgical staff of the Mater Infirmorum Hospital, who assisted me at the operation; also Dr. Dickson Boyd of the Anatomical Department of Queen's University, Belfast, for demonstrating to me the anatomical approach to the ganglion on the cadaver.

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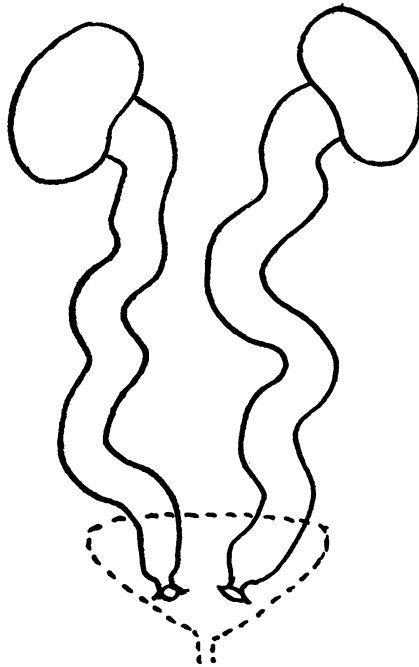
## Megaloureter in the New-Born

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MEGALOURETER, or congenital enlargement of the ureter in the absence of any organic obstruction, is said to be an uncommon condition. Cockayne<sup>1</sup> described three cases of it, one in a child of two years, one in a child of seven years, and one in a girl of fifteen years; Caulk<sup>2</sup> described a case in a woman of thirty-two years of age; Bachrach<sup>3</sup> described a case in a woman of twenty-seven years, and Hurst and Geymer-Jones<sup>4</sup> a case in a woman of thirty-three years. These few cases are the only ones I can find in the literature. Braagsch<sup>5</sup>, in his monograph on "The Practice of Urology," makes no mention of it.

The condition would thus appear to be a most uncommon one, and three cases of it which I have found, post-mortem, in newborn infants appear to me worthy of report. One of these cases occurred in a female anencephalic infant of full term, one occurred in a female stillborn infant which had a spina bifida, and one case occurred in a female stillborn infant of full term in which I could find no anomaly of development apart from the megaloureters. In these three cases the condition was bilateral, and in each case the naked-eye, as well as the microscopic, appearances were closely similar. The following description is therefore based on a study of the ureters obtained from the apparently normal stillborn infant.



Megaloureters in a newborn infant of full term. The bladder is indicated by dotted lines.

Each ureter descended, from the renal pelvis over the psoas muscle and pelvic brim, in a markedly tortuous course to its termination in the bladder wall. Its transverse diameter gave an average measurement of 15 mm., which is more than four times that of the normal ureter of a newborn infant. At its termination, 5 mm. from the bladder wall, the dilated ureter converged suddenly to a narrow tube. This narrow portion, together with the adjacent part of the bladder, was embedded in paraffin wax, and cut serially in sections of ten microns thickness. A study of these sections, after staining, showed the lumen in this narrow part of the ureter to be patent throughout its course, and to communicate with the bladder cavity by a patulous urethral opening at the upper and outer angle of the trigone. No obstruction of any kind could be detected between the dilated part of the ureter and its opening, and there was no hypertrophy of the bladder wall.

Sections of the dilated part of the ureter from one side were cut in a transverse plane, and from the other side they were cut in a longitudinal direction, and alternate sections were stained with hæmatoxylin, and with Mallory's triple connective tissue stain. These sections showed that a mild degree of hypertrophy of the muscle wall of the ureter was present with a great increase in the amount of connective tissue. But whether the increase of connective tissue was a primary condition or a secondary change from hypertrophied muscle, of an analogous nature

to that which occurs in hypertrophied cardiac muscle and in blood-vessels, is a question which cannot be satisfactorily answered. In the sections there is nothing which could be interpreted as offering support to either possibility. There was also a flattening of the epithelial lining of the ureter, with absence of its usual folding, and there was a rich supply of markedly congested blood-vessels. No changes suggestive of inflammatory reaction were detected. Careful search was made for nerve-cells between the muscle layers, and between the muscle and epithelial layers, but no trace of such cells could be found.

**DISCUSSION.**—The condition of megaloureter would appear to be an analogous one to that of megalocolon, and other congenital enlargements of the intestinal tube, e.g., megaloduodenum, megalojejunum, etc.<sup>6</sup> But unfortunately little is known of the factors involved in these conditions, and what is known is of little help in the study of megaloureter. It has been suggested that the megalocolon is a primary unconditioned dilatation of the gut, developed in response to an attempt to overcome an obstruction to the free passage of the intestinal contents. But in the cases of megaloureter just described, this explanation is not acceptable, as no obstruction of any kind was found that could have prevented the free flow of urine along the ureter in any part of its course, or to its flow from the ureter to the bladder, or from bladder to the exterior.

Another suggestion is that in megalocolon there may be an inco-ordination between the sympathetic and the para-sympathetic nerves passing to the part. This suggestion has been advanced as the etiological factor in such cases by Illingworth and Dick.<sup>7</sup> It is true that dilatation of the colon has been produced experimentally by Adamson and Aird,<sup>8</sup> after section of the sympathetic nerves passing to the large intestine, but as far as I am aware, the condition of megaloureter has never been produced by similar experimental means. It should be remembered, however, that these experiments of Adamson and Aird were performed on *adult* cats, and the conditions were therefore quite different from those which obtain during the differentiation and development of specific structures during embryonic life, and there is no proof that nervous impulses, either of sympathetic or para-sympathetic origin, are necessary for normal development and growth. On the other hand, the experiments performed by Abel<sup>9</sup> seem to make it clear that the development of muscle progresses normally in the absence of nervous impulses. And it has recently been shown by Tower<sup>10</sup> that the influence of the sympathetic nervous system is not an essential factor for the growth of muscle in kittens.

Another suggestion is that megalocolon is the result of some congenital defect of the neuro-muscular mechanism of a similar nature to that said by Hurst<sup>4</sup> to exist in cases of achalasia of the cardiac sphincter with dilatation of the œsophagus. So many facts have been assembled in opposition to this view, that it can hardly be seriously considered as a causative factor in the cases of megaloureter here described. And in addition, all three cases showed a wide patulous uretral opening into the bladder. The possibility of a "sphincter which has failed to relax" is thus ruled out from the limits of probability.

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## ULSTER MEDICAL SOCIETY

A MEETING of the Society was held on Thursday, 19th April, 1934, in the Medical Institute at 8.30 p.m. The president, Professor W. J. Wilson, was in the chair. Sir Thomas Houston delivered an address on "Rheumatism and Its Etiology." This paper, and the discussion which followed it, will be the basis of a special number of this Journal in October on Rheumatism.

The annual general meeting of the Society was held on Thursday, 24th May, at 5.30 p.m. After routine business, the following office-bearers were elected for the session 1934-5:—

President, S. R. Hunter, M.D.; vice-presidents, Rowland Hill, B.A., M.D., M.R.C.P.Lond., F.R.C.S.Edin., and John McCloy, M.D., D.P.H.; hon. treasurer, C. A. Calvert, M.B., F.R.C.S.I.; hon. secretary, F. P. Montgomery, M.B., D.M.R.E.Cantab.; hon. librarian, T. A. Kean, M.D.; hon. editorial secretary, H. H. Stewart, M.D., M.R.C.P.Lond.; hon. editor of Journal, R. H. Hunter, M.D., M.Ch., Ph.D., M.R.I.A.

Hon. Editorial Board: P. T. Crymble, M.B., F.R.C.S.Eng.; R. J. Johnstone, M.P., B.A., M.B., F.R.C.S.Eng.; H. J. Ritchie, M.B., L.A.H.Dub.; W. W. D. Thomson, B.A., B.Sc., M.D., D.P.H., M.R.C.P.Lond.

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