

DELIMITATION OF ABDOMINAL REGIONS.

BY E. A. BALLOCH, A.M., M.D.,
Medical Department, Howard University, Washington, D. C.

PROFESSOR ANDERSON'S communication to the Anatomical Society of Great Britain, in May last, pleading for uniformity in the delimitations of the regions of the abdomen, draws attention to a matter which is of considerable importance to practical anatomists.

As he clearly shows, there is a complete lack of uniformity among anatomists, both as to the boundaries and contents of the region thus artificially outlined. The starting points from which the lines are drawn are likely to vary in position, and no less than fourteen different subdivisions have been made.

Professor Anderson rightly characterizes this confusion as "chaos."

The question is: Can we simplify this subject and agree upon a subdivision acceptable to all?

I take it that our purpose, as teachers, is to adapt anatomy to the daily needs of the practitioner. Now, as a matter of fact, it is my observation that in anatomy, as applied to daily practice, these artificial subdivisions are seldom used.

In treating abdominal diseases or injuries, the practitioner will, in most cases, refer to the umbilicus and the median line of the abdomen as starting points, and designate the lesion with reference to these landmarks. References need only be made to tumors of the pylorus, aneurisms of the abdominal aorta, McBurney's tender point, the incisions for abdominal section, etc. This being the fact, we, as anatomists, should seek to make our artificial divisions of the abdomen conform to the needs of the practitioner as demonstrated by his daily routine.

It must be apparent to all, that the first thing to do is to simplify the division of this region as to number. Nine subdivisions are too many, and this refinement of subdivisions is not needed by those for whose benefit it was presumably made.

Secondly, the boundaries of the subdivisions must be fixed points or, at least, such as are not subject to any great variation in position. Lastly, the subdivisions should be made to conform to the daily needs of the practitioner.

Ophthalmologists have for many years divided the surface of the cornea into quadrants, and lesions in this locality are referred to the upper or lower, outer or inner quadrant, as the case may be, and such reference is perfectly understood by all. So far as I have observed, this plan works well. I see no reason why some such simple subdivision of the abdomen cannot be made.

A line from the symphysis pubis to the ensiform appendix would answer for a vertical, while the horizontal plane could be made at the umbilicus.

The boundaries of these spaces can be outlined with almost equal exactness on the dorsum, where the vertebral column marks the vertical plane, while the horizontal would fall between the third and fourth lumbar vertebræ.

This would give four regions whose boundaries would be reasonably well fixed and not subject to any marked variation. They could be designated as upper and lower, right and left quadrants; and this plan

would be an improvement on the present methods of subdivision.

It might be objected to such a division that the vertical plane would bisect the stomach, bladder and uterus, and throw part of these organs into one quadrant and part into another. As to the stomach, this objection lies equally against the present subdivision. As to the bladder and uterus, they are really more pelvic than abdominal viscera, and I think the objection would hardly have much weight from a practical standpoint.

The British Society appointed a committee to consider this matter, with a view to arriving at a uniform plan of delimitation of the regions of the abdomen.

I think we might properly co-operate with this committee, as the question is one equally important to us and to them.

Medical Progress.

RECENT PROGRESS IN MEDICAL CHEMISTRY.

BY WILLIAM B. HILLS, M.D.

FORMATION OF GLYCOGEN FROM DIFFERENT SUGARS.

C. Voit, Otto, Abbott, Lusk, and F. Voit¹ have investigated the formation of glycogen and the changes which sugars undergo in the alimentary canal. From the examination of previous and the present researches on glycogen formation in the liver, it is believed that glycogen may originate in two ways; first, it is a temporary store of carbohydrate food, and secondly, it may be the result of proteid metabolism. The present research was performed on animals (rabbits, hens) in which the hepatic glycogen had been reduced to a minimum by starvation, and relates chiefly to the former of the two sources of glycogen just alluded to. Large doses of different sugars were given. Dextrose, lævulose, cane sugar, and maltose increased the hepatic glycogen; lactose and galactose did not, or only very slightly.

Cane sugar and maltose are inverted in the alimentary canal. Lævulose, lactose, and galactose are absorbed as such, and after large doses pass as such into the urine. The liver appears unable to form glycogen from sugars which, like lactose and galactose, do not pass into the condition of either dextrose or lævulose. In fact, these appear to be the only forms of sugar which, when present in the blood, lead to the storage of glycogen in the liver. When subcutaneously injected, the hepatic glycogen rises in amount. No other form of sugar behaves in this way. Regarding lævulose, the liver cells must either form glycogen from it directly or after previously changing it into dextrose.

BEHAVIOR OF LACTOSE AND GALACTOSE IN DIABETICS.

F. Voit² finds that lactose causes an increase of the sugar in diabetes. The patient upon whom the experiment was made was taking strict diet, and the amount of sugar in the urine was reduced to a low ebb. The following explanation is given by the author:—Before the sugar was given, the small amount of diabetic sugar in the urine must have originated from proteid

¹ Read before the Association of American Anatomists, December, 1892.

¹ Journal of the Chemical Society, 1892, page 902, from Zeit. Biol., xxviii, page 245.

² Loc. cit., 1892, page 903, from Zeit. Biol., xxviii, 353.