

**THE OCCURRENCE OF CONGENITAL ADHESIONS IN THE  
COMMON ILIAC VEINS, AND THEIR RELATION  
TO THROMBOSIS OF THE FEMORAL AND  
ILIAC VEINS.**

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In 1906 I presented to the Anatomical Section of the British Medical Association at its Toronto meeting a preliminary notice of certain congenital adhesions occurring in the left common iliac vein.<sup>1</sup> Since then I have continued my observations on material from the Anatomical Laboratory of the University of Michigan, and also upon a number of veins obligingly placed at my disposal by Dr. Downey L. Harris, City Pathologist of St. Louis, Mo. I have thus been able to examine altogether the iliac veins of 107 individuals, and can confirm and add to the results given in the earlier communication.

The adhesion consists of a fusion of the anterior and posterior walls of the vein, a diminution or division of its lumen being thereby produced. In many cases it takes the form of a column extending between the two walls of the vein (Fig. 1), sometimes circular, and from 1 to 4 mm. in diameter, at other times more oval, its longer diameter reaching as much as 6 mm.; it varies in height and position, in the majority of cases being situated lateral to the median line of the vein, so that the lumen to the medial side of it is greater than that to the lateral side.

In a second type the adhesion was marginal in position, occurring at the lateral border of the vein, so that the lumen was merely diminished but not divided. Of this type two subordinate forms may be distinguished, the more important of these being that in which the adhesion is of a more or less triangular form (Fig. 2), its base, corresponding to the lateral border of the vein, measuring from 8 to 18 mm., while its height varies from 5 to 10 mm. in different individuals. In such cases there is a somewhat sudden diminution of the lumen of the vein corresponding to the height of the adhesion. In the other subordinate type (Fig. 3) the adhesion is a linear one along the outer border of the vein, and may readily be overlooked; it produces but little diminution of the caliber of the vessel.

A third type (Fig. 4) differs from that just described in that the adhesion is at the medial border instead of at the lateral border of the vein. Examples of this type are rare, only two having been observed, but in both these the adhesion produced a very marked diminution of the lumen, reducing it to about one-third the diameter

<sup>1</sup> British Medical Journal, 1906, II, 1699.

which it possessed above and below the adhesion. The fusion extended from a point on the medial border of the left common iliac vein at its junction with the right common iliac, and extended up-

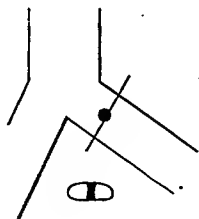


FIG. 1

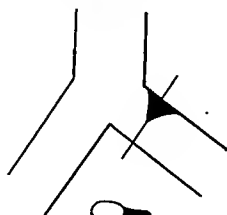


FIG. 2

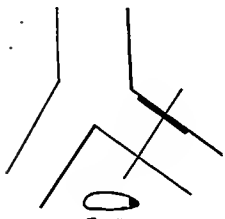


FIG. 3

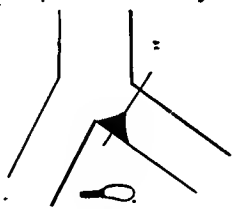


FIG. 4

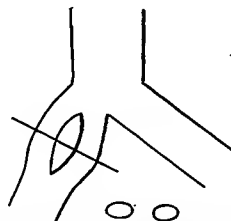


FIG. 5

In the figures the veins are represented as transparent and the adhesion is indicated in solid black. A diagram of a transverse section of the vein passing through the adhesion is also given in each case.

ward and outward so as to have an elongated triangular form and to lie almost at right angles to the axis of the common iliac vein.

Finally, a fourth type (Fig. 5) may be recognized, in which a perforation replaces the adhesion, the vein being double for a limited

portion of its extent. Examples of this type are the rarest of all, but one having been observed; nevertheless, it is most important from a morpbological standpoint, in that it affords a possible explanation for the occurrence of the more frequently occurring adhesions.

The frequency with which the adhesions occur is somewhat remarkable. In the 107 cases examined adhesions occurred in 35, making a percentage occurrence of 32.7. These adhesions were distributed according to the different types mentioned above, as follows:

Type I.	Columnar . . . . .	15
Type II.	Marginal:	
	(a) Triangular . . . . .	11
	(b) Linear . . . . .	5
Type III.	Medial . . . . .	2
Type IV.	Perforated . . . . .	1
		<hr/>
Total . . . . .		34

One case is not included in this list, inasmuch as it presented what seemed to be a combination of types IIa and III, a strong adhesion projecting from the lateral border of the vein medially, and another occurring at the medial border, so that the interval between the free edges of the adhesions was only about 1 mm. broad, the diameter of the vein immediately above and below the line of the adhesions being 1.5 mm.

A most striking peculiarity in the distribution of the adhesions was their enormous preponderance in the left vein as compared with the right. Of the 35 adhesions observed, but 3 were in the right vein, the percentage of occurrence in the left vein being 29.9; or, in other words, the adhesions in the left vein formed 91.4 per cent. of the total number. Whether the frequency of occurrence differs in the two sexes, my observations do not permit me to say with any degree of certainty, since out of the 107 individuals examined, but 17 were females. Of these, 4 showed adhesions, this number being 23.5 per cent. of the total number of females examined. The number examined was, however, too small to give this figure definite value.

The significance of these data in connection with the occurrence of thrombosis of the femoral and iliac veins seems to be very great. I do not intend to discuss the proximate causes of this thrombosis, as these lie entirely outside my province. But it is clear that any arrangement tending to interfere with the flow of blood through the veins must act as a contributory cause, and, therefore, a factor in the etiology of the trouble. It is well known that a large majority of the thromboses occur upon the left side, and it seems altogether reasonable to associate this fact with the preponderating occurrence of the adhesions described above upon the left side. Virchow long

ago pointed out that the anatomical relations of the right common iliac artery and the left common iliac vein might well contribute to the occurrence of thromboses on the left side, the artery as it crosses the vein exerting a certain amount of pressure upon it and thereby tending to produce some stasis or retardation in the flow of the venous blood. Add to this the occurrence of adhesions in the left vein in nearly 30 per cent. of the individuals examined, and we surely have a combination of conditions which warrant an association of the anatomical with the pathological phenomena.

Sex.	Age.	Cause of Death.	Type of adhesion.	Vein in which adhesion occurred.
Male	51	Fatty degeneration of heart.	I	Left.
"	58	Carcinoma of stomach.	IIa	"
"	29	Chronic interstitial nephritis.	IIa	"
"	41	Lobar pneumonia.	IIa	"
"	36	Mitral insufficiency	I	"
"	39	Acute fibrinous peritonitis.	I	"
"	31	Psoas abscess.	IIa and III	Right.
"	65	Acute miliary tuberculosis.	IIa	Left.
"	32	Mitral and aortic insufficiency.	I	"
"	70	Valvular disease of heart.	I	Right.
"	70	Nervous prostration.	IIb	Left.
"	72	Senile dementia.	IIa	"
"	40	Pneumonia.	III	"
"	82	Exhaustion.	IIb	"
"	?	Kidney disease.	I	"
"	56	Chronic mental disease.	I	"
"	83	Heart disease.	I	"
"	42	Peritonitis.	IV	Right.
"	44	Apoplexy.	IIb	Left.
"	56	Pneumonia.	IIa	"
"	40	Pulmonary tuberculosis.	IIa	"
"	75	Dysentery.	IIa	"
"	63	Dysentery.	IIa	"
Female	49	Acute dilatation of heart.	III	"
"	39	Cerebral hemorrhage.	IIb	"
"	48	Fracture of base of skull.	IIa	"

As regards the causation of the adhesions, I have little to add to the opinion expressed in my preliminary communication. That was to the effect that the adhesions are congenital in their nature, due to the incomplete disappearance of a loop by which the iliac vein in the embryo originally surrounded an artery, probably the umbilical. Of the existence of such a loop we have evidence from what has been observed in certain of the lower animals, and it is interesting to note that a perforated condition of the vein, a condition practically producing a loop arrangement, is among one of the types of adhesions recognized above. Furthermore, it may be noted that the extraordinary frequency of the occurrence of the adhesions on

the left side as compared with the right is in harmony with this idea, the pressure of the right artery upon the vein being probably the cause by which an inhibition of the development, normally resulting in the complete disappearance of the loop, has been produced. The adhesions in the great majority of cases occur at the level at which the crossing of the vessel takes place. At the same time it must be recognized that the pressure of the artery is not in itself the cause of the adhesions; the occurrence of isolated cases in the right vein and of occasional cases in the left vein considerably below the level at which it is crossed by the artery being evidence of an ulterior cause, which I take to be the embryonic loop. It may be added that the study of sections taken through two suitably preserved veins in the region of the adhesion showed no evidence of inflammatory or other pathological processes.

The accompanying table shows the sex, age, cause of death, and type of adhesion in the majority of cases observed. In a few cases the necessary data were lacking, and in some instances the data in the third column are wanting in precision, but are given as furnished.

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### ACUTE GLANDULAR FEVER.

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THE lack of consideration of acute glandular fever as an independent disease, having a distinct and characteristic entity, or as probably being an aberrant form of influenza nostras, typhoid fever, or some other acute infectious disease, and the prevalence of many cases of fever of 101° to 104° F., with daily remissions of 1° to 2°, in which no positive diagnosis has been made, was the stimulus to investigate acute glandular fever as a common malady, and claim for it consideration and a conspicuous place among the acute infectious fevers.

**DEFINITION.** Acute glandular fever is an infectious disease developing, as a rule, without premonitory signs, and characterized by slight redness of the throat, high fever, and swelling and tenderness of the lymph glands of the neck, particularly those behind the sternomastoid muscles. The fever is of short duration, but the glandular hypertrophy persists for from ten days to four weeks.

**HISTORICAL.** The disease was first recognized by Pfeiffer, of Weisbaden, in 1889, who called especial attention to it under the name of "Drüsenfieber." Since Pfeiffer's description of the disease cases have been reported by numerous authors, mostly in Ger-