

POLYACRYLAMIDE GEL ELECTROPHORETIC PATTERN OF SERUM PROTEINS IN LYMPHOGRANULOMA VENEREUM

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Summary

Serum proteins were studied in 20 cases of Lymphogranuloma Venereum (L.G.V.) by polyacrylamide gel electrophoresis as well as conventional chemical method. Gel electrophoresis showed decreased pre-albumin in 12 (60%) cases which could indicate liver dysfunction. This appears to be the first report on gel electrophoresis of serum proteins in cases of L.G.V.

Williams and Gutman¹ observed that the serum of patients with L.G.V. showed hyper-proteinemia with increase in globulin fraction, normal or reduced albumin and reversal of the albumin-globulin ratio. Their observation was confirmed later, by various other workers. Galbraith et al (1957) reported prominent gamma globulin bands in 5 cases and prominent alpha-2 globulin bands in 2 cases on serum protein paper electrophoresis in 5 cases of L.G.V.

Prealbumin is one of the main components of normal serum globulins and migrates ahead of albumin in polyacrylamide gel electrophoresis. As pre-albumin is exclusively synthesized in the liver² it was considered worthwhile carrying out polyacrylamide gel electrophoresis on serum of L.G.V. patients to detect any disturbance.

Materials and Methods :

Material consisted of 20 cases (18 males and 2 females) of L.G.V. who attended S.T.D. clinic of JIPMER Hos-

pital, Pondicherry between April and August, 1972. The ages of the patients varied from 15 to 46 years. The duration of the disease was less than 15 days in 11 cases and more than 15 days in 9 cases.

Serum total and differential proteins were estimated by the method of Reinhold³. Serum proteins were fractionated by polyacrylamide gel electrophoresis using the apparatus and method described by Rajagopal et al⁴. Normal sera were fractionated side by side for comparison.

Table 1 shows the observations on serum proteins in 20 cases of L.G.V. Pre-albumin is decreased in 12 cases (60%) and duration of the disease is less than 20 days in 8 out of these 12 cases. Albumin is reduced in only one case. Alpha-2 globulin area is increased in 15 cases. Total protein is above 7g% in 12 cases. Two of these cases show values above 8g%. Globulins are above 3.4g% in 18 cases, 6 cases showing values above 4g%. Albumin-globulin ratio is 1 or below in 18 cases.

Discussion

Whether or not the liver may be affected in patients suffering from L.G.V. is a subject of controversy.

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TABLE I
Serum Protein Fractions in L.G.V.

No.	Duration of disease	By gel electrophoresis			By chemical estimation			
		Pre-albumin	Albumin	Alpha-2 Globulin area	Total proteins	Albumin	Globulin	A/G ratio
1	2	3	4	5	6	7	8	9
1	7 days	—	N	+	7.4	3.3	4.1	0.80
2	7 days	N	N	N	7.5	3.8	3.7	1.03
3	10 days	—	N	+	9.0	4.0	5.0	0.80
4	10 days	—	N	+	7.8	4.8	3.0	1.60
5	13 days	—	N	+	6.9	3.0	3.9	0.77
6	15 days	—	N	N	7.5	3.6	3.9	0.92
7	15 days	—	N	+	7.4	3.3	4.1	0.80
8	15 days	—	N	+	7.0	3.5	3.5	1.00
9	15 days	N	N	+	7.8	3.2	4.6	0.80
10	20 days	N	N	+	7.5	3.5	4.0	0.87
11	20 days	—	N	N	6.8	3.4	3.4	1.00
12	25 days	N	N	N	6.9	3.4	3.5	0.97
13	1 month	—	—	+	7.0	2.5	4.5	0.55
14	1 month	—	N	+	7.0	3.2	3.8	0.84
15	1 month	—	N	+	8.2	4.0	4.2	0.95
16	1 month	N	N	+	7.2	3.3	3.9	0.85
17	1 month	N	N	+	6.9	3.4	3.8	0.90
18	1½ months	N	N	+	7.2	3.4	3.5	0.97
19	2 months	N	N	+	7.0	3.4	3.6	0.94
20	6 months	A	N	N	7.4	3.6	3.8	0.95

N = Normal; + = Increased; — = Decreased; A = Absent

Kampmeier et al⁵ observed that tests possibly related to serum proteins showed either no changes or inconsistent changes in cases of L.G.V. Stineman et al⁶ studied hepatic function tests in 14 patients of L.G.V. and found that the thymol turbidity and cephalin flocculation tests were the only ones showing significantly abnormal results, this was ascribed to the hyper-globulinemia usually seen in L.G.V. and not to actual liver disease. Barth & Alenenco⁷ were the first to report a case of L.G.V. with acute hepatitis. Wagoner et al⁸ reported two cases of L.G.V. with granuloma in the liver while Jorgensen⁹ did not find any granulomas in eight autopsied cases of L.G.V. Schachter et al¹⁰ described hepatitis as a possible complication in a case of acute L.G.V. Bjerke & Hovding¹¹ reported a case of L.G.V. with hepatic involvement.

In the present study serum pre-albumin was reduced in 12 out of 20 cases of L.G.V. which could indicate liver dysfunction because pre-albumin is exclusively synthesized by liver². As the number of cases studied in the present study is small, further study on a larger number of cases will be of interest.

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