THORACIC DUCT DRAINAGE WITH AN ACUTE PERITONITIS

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Thoracic duct drainage is one of contemporary methods for desintoxication with the acute peritonitis. First C. Costaiha (1922) performed a lymph drainage with this purpose in a female patient with pneumococcic peritonitis (cited after 1). Cooke (1924) drained the thoracic duct in a female patient with diffuse suppurative peritonitis (cited after 1). Thoracic duct drainage is indicated in any cases of an acute diffuse peritonitis enterring the intoxication stage. According to A. M. Karyakin (1982) drainage is most effective when it starts no later than 12 hours after the beginning of a perforative peritonitis and 24 hours when peritonitis with other etiology is concerned. It is explained with the fact that at early stage of peritonitis lymph capillary tone is still preserved and lymph transport is effective. The amount of drained lymph required daily is between 1 and 2 l. In cases of increase or decrease of this quantity a dirigible drainage should be applied.

The operative technique of thoracic duct drainage is well elaborated. We used Kümmel's section (1930) (cited after 4) — a horizontal section over the left clavicle, cutting of the first and second cervical fasciae and the lateral leg of m. sternocleidomastoideus and uncovering of the internal jugular vein. The thoracic duct is commonly located behind and laterally to it. The thoracic duct is opened and cannulated by using a plastic cannula.

Material and methods

Our experience covered 10 patients with an acute peritonitis in advanced intoxication and partially at terminal stage of the disease. One can see on table 1

Table
Ductus thoracicus drainage

	Kind of peritonitis	Intestinal		Colonic		Biliary		Pancreatitis		Urogenic		Deceased	%
		Males	Females	m.	f.	m.	f.	m.	f.	m.	f.		
Stage	Reactive												
	Toxic					3			2				0
	Terminal	1	1	2						1		5	100
	Total	1	1	2		3			2	1		5	
Dissemination	Local												
	Diffuse					3			2				0
	Generalized	1	1	2						1		5	100
	Total	1	1	2		3			2	1		5	

that two patients were with diffuse peritonitis of intestinal origin, two ones of colonic one, three — of biliary one, two with pancreatogenic peritonitis and one female patient with diffuse urogenic peritonitis. 5 of all cannulated patients at terminal stage of the disease with a diffuse suppurative peritonitis died.

Results and discussion

The following laboratory investigations were performed in these 10 patients: (table 2) the daily amount of dripped out lymph varied between 1000 and 2000 cm^3

Table 2

Index \ Day	IIIrd	IInd	Ist
Quantity	800—1000 ml	1000—1500 ml	1000—2000 ml
Speed/min	20—40 droplets	30—50 droplets	40—60 droplets
Central venous pressure In mm H_2O	40—60	50—80	60—80
Lymph pressure in mm H_2O	150—180	180—200	200—3000
Lymph relative weight	1014—1018	1018—1024	1020—1024
Blood erythrocytes	3—3,5 mill	3—4 mill	3—4 mill
Lymph erythrocytes	absent	100000—200000	500000—1000000
Blood thrombocytes	180000	200000	250000
Lymph thrombocytes	170000	190000	200000
Blood leucocytes	11000	12000	17000
Lymph leucocytes	7000—8000	12000—15000	14000—19000
Blood proteins	6—7,2 g %	6,5—7 g %	6,5—7,5 g %
Lymph proteins	3—3,6 g %	3,5—4,9 g %	4—4,4 g %
Blood bilirubin	1,1 mg %	1—1,2 mg %	1—1,3 mg %
Lymph bilirubin	1,2 mg %	1,2—1,5 mg %	2,8—3 mg %
Blood urea	20—30 mg %	30—60 mg %	60—85 mg %
Lymph urea	20—40 mg %	40—80 mg %	100—120 mg %
Blood potassium	3,8—4 mEquiv.	4—4,3 mEquiv.	4,2—4,8 mEquiv.
Lymph potassium	3,6—4 mEquiv.	3,8—4,2 mEquiv.	4,3—4,5 mEquiv.
Blood sodium	118—120 mEquiv.	120—124 mEquiv.	118—122 mEquiv.
Lymph sodium	102—110 mEquiv.	112—120 mEquiv.	120—128 mEquiv.
Blood ammonium	150	200	400
Lymph ammonium	200	400	600
Amylase	280 UI	300 UI	420 UI
Amylase (in pancreatitis)	300 UI	800 UI	760 UI

on the first day, between 1000 and 1500 cm^3 on the second and between 800 and 1000 cm^3 on the third day. The daily amount of drained lymph must be between 1 and 2 l to produce a depuration effect. When this quantity is smaller one can not produce the necessary effect while the loss of a greater amount involves a considerable ion, enzyme and protein substance elimination from the organism. In such cases one uses the dirigible drainage by means of methods for suppression or stimulation, respectively, of the amount of dripped out lymph. The speed of lymph drainage was between 40 and 60 drops per min. on the first day, between 30 and 50 ones on the second and between 20 and 40 ones on the third day. The

lymph pressure was 200—300 mm H_2O column on the first day, 180—200 mm H_2O column on the second and 150—180 mm H_2O column on the third. The relative weight of the lymph varied between 1014- and 1024. The cytological examinations revealed between 500 000 and 1 mill erythrocytes per mm^3 on the first day, a decrease down to 100- 1 mill per mm^3 on the second and a lack of erythrocytes on the third day. Both leukocyte and thrombocyte count corresponded to that in blood during the whole period. Lymph proteins were by 30 per cent lower than that in blood on the first day, (4—4,4 g %); they decreased down to 3,5—4 g % on the second and almost to the half level (3—3,6 g %) on the third day. Bilirubin was twofold more in the lymph than in the blood on the first day (2,8—3 mg %). It was reduced on the second and normalized on the third day (1,2 mg %). Urea in the lymph was also twofold more on the first day (100—120 mg %) and then it reduced to normal levels (20—40 mg %). Sodium and potassium ion levels corresponded to those in the blood without any abnormalities. Ammonium level was by 30 per cent higher than that in the blood and began to decrease on the next days. Amylase was considerably increased in pancreatogenic peritonitis patient's only.

The clinical and laboratory results obtained demonstrate that lymph drainage possesses certain depuration properties concerning the kinins, bilirubin, urea and ammonium in blood and reduces significantly the level of peritonitis intoxication. The lethality in our cases (50 %) is due to rather late lymph drainage application — at terminal stages of the disease when lethality is very high (85—95 %) (3). The loss of proteins, ions, enzymes and nutritive substances are restituted in our patients in concordance with the indexes studied by using infusions of blood, proteins, water-electrolyte solutions, and vitamines. There were no complications after lymph drainage application. In any cases lymph fistula closed up spontaneously under pressing bandage for several days after cannula extraction.

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ДРЕНАЖ ГРУДНОГО ПРОТОКА ПРИ ОСТРОМ ПЕРИТОНИТЕ

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РЕЗЮМЕ

Приведены наблюдения 10 больных острым диффузным перитонитом, которым был наложен дренаж грудного протока. На основе клинических наблюдений и лабораторных исследований сделано заключение, что умеренный лимфатический дренаж оказывает определенный депурационный эффект на кинины, мочевину, билирубин, амилазу и другие шлаки организма больного перитонитом, а также понижает интоксикацию в результате перитонита.