

Table 1 Per cent incidence of various pathogens recorded in field populations of *Diacrisia obliqua*

Instar	Per cent incidence				
	<i>Nosema</i> sp.	Polyhedra	Bacteria	Double infection with polyhedra and bacteria	No pathogen
II	0	43.29	10.43	15.28	31.00
III	7.57	43.57	7.14	13.15	28.57
IV	0	32.71	23.86	21.14	22.29
V	0	32.83	30.67	19.83	16.67
VI	0	33.86	27.30	18.56	20.28
VII	0	45.80	18.40	14.60	21.20

The data show that *Nosema* sp. was noticed only in 7.57% of III instar larvae, but was not found in other instars. Viral polyhedral bodies were more frequently encountered in all the instars. Incidence of bacteria shows considerable variation in the different instars. Double infection with viral polyhedra and bacteria was also recorded, and ranged between 13.15 and 21.14% in the different instars. In all instars, larvae free from infection were also encountered.

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SERUM LIPID PROFILES IN CRYPTORCHID ALBINO RATS

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CRYPTORCHIDISM is a common (often endocrine) disorder^{1,2}. Scrotal insulation and artificial cryptorchidism cause sterility in man and animals³. Cryptorchidism induces decrease in size and weight

of testis and causes atrophy of the testis as well as the accessory reproductive organs of the rat^{2,4-6}. In man, cryptorchidism is associated with azoospermia or oligospermia with poor spermograms⁷. In cryptorchid animals, the serum gonadotrophin levels are significantly elevated^{8,9}, with decreased testosterone titre¹⁰. In view of the changes in the plasma hormonal levels and physiological derangement during cryptorchidism, it is worthwhile to undertake studies on serum lipid fractions after cryptorchidism.

A total of 20 Wistar albino rats (100 days old, 150 ± 5 g body weight) were selected for the study. The rats were divided into two groups of 10 each. One group was subjected to bilateral cryptorchidism as described earlier⁵. The second group was sham-operated and used as control. Both groups were maintained under the same laboratory conditions (26 ± 2°C, 12:12 dark:light periods), fed on balanced rat pellet diet (Hindustan Lever Ltd, Bombay), and given water *ad libitum*. One month after the operation the animals were sacrificed by cervical dislocation and the blood was collected. Heparinized blood was centrifuged and the serum was collected and stored (-2°C) until use.

Total lipid¹¹, phospholipids¹², lipase activity¹³, free fatty acids, cholesterol, triglycerides¹⁴, and glycerol¹⁵ were estimated by the usual methods.

Table 1 shows the changes in serum lipids associated with cryptorchidism in albino rats. The normal serum lipid values obtained in the present study conform with those of previous studies¹⁶.

The total lipid content of the serum was decreased in cryptorchid rats, indicating increased lipolysis. Hence lipase activity was determined and found to be markedly elevated in cryptorchidism. Triglycerides decreased significantly with the elevation in lipase activity. The increase in lipolysis also elevated the

Table 1 Levels of total lipids, phospholipids, free fatty acids, triglycerides, glycerol and cholesterol (mg/100 ml), and lipase activity (μmol of PNRA cleaved/mg protein/h) in serum of control and cryptorchid rats

Component	Control	Cryptorchid	Change over control (%)
Total lipids	487.98 \pm 13.48	403.52 \pm 10.89	-17.30 <i>P</i> < 0.001
Phospholipids	71.68 \pm 2.81	54.8 \pm 3.11	-23.55 <i>P</i> < 0.001
Lipase activity	0.029 \pm 0.001	0.043 \pm 0.001	+48.28 <i>P</i> < 0.001
Free fatty acids	63.51 \pm 2.83	39.92 \pm 2.04	-37.14 <i>P</i> < 0.001
Triglycerides	9.54 \pm 0.68	5.17 \pm 0.30	-45.81 <i>P</i> < 0.001
Glycerol	14.83 \pm 0.92	20.66 \pm 1.30	+39.31 <i>P</i> < 0.001
Cholesterol	78.19 \pm 3.45	93.88 \pm 3.14	+20.07 <i>P</i> < 0.001

Values are mean \pm SD (*n* = 10).

glycerol content of serum. But free fatty acids were decreased, suggesting their mobilization into oxidative metabolism and ketogenesis¹⁷. Hence in cryptorchidism serum lipid metabolism seems to be oriented towards lipid oxidations resulting in decreased triglycerides. Phospholipids were lower in cryptorchid animals, indicating increased uptake of phospholipids by the testis and accessory reproductive organs. The cryptorchid testis is known to preferentially utilize lipid components, particularly the phospholipid fractions⁵. The increase in serum cholesterol in cryptorchid animals indicates active addition of cholesterol into the blood from the synthetic sites and/or decreased uptake by tissues. Hence accelerated synthesis of cholesterol in tissues of cryptorchid animals can be expected.

In general, the results suggest that short-term cryptorchidism leads to effective depletion of some lipid components from the serum and an accumulation of cholesterol.

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