TABLE I

Alterations in the nuclear contents of rat with estrone

Dose	Duration (hr)	Total % of aberrations	Mitotic index	DNA content (mg/g)	
				Liver	Spleen
10 mg/kg	24	46	2·05	0·75	1·29
20 mg/kg (10 mg/24 hr)	48	50·7	2·29	0·75	1·37
30 mg/kg (10 mg/24 hr)	72	55·7	3·33	0·79	1·37

increase in the dose. This was in relation to an increase in the quantity of DNA in the liver and spleen (Table I), showing that estrone is a cell prolific agent.

Although the chromosomal aberrations were found in many cells, their type and extent varied from cell to cell even in the same individual. The gaps and breaks were randomly distributed and no particular chromosome was affected. These aberrations were of the chromatid type showing that most probably the damage to the chromosomes occurred, while they were in the G_2 phase.

The induction of small chromosomal deletions or translocations results in significant changes in neoplastic initiation. These rarely arise as a result of direct damage to DNA, but are mainly due to indirect disturbances in chromosome synthesis. The analysis of chromosomes can, therefore, be one of the means for screening cancer.

September 10, 1980.

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ON A RARE TREMATODE, *TRANSVERSOTREMA CHAUHANI* N.SP., FROM A FRESHWATER FISH, *NANDUS NANDUS* (HAM.)

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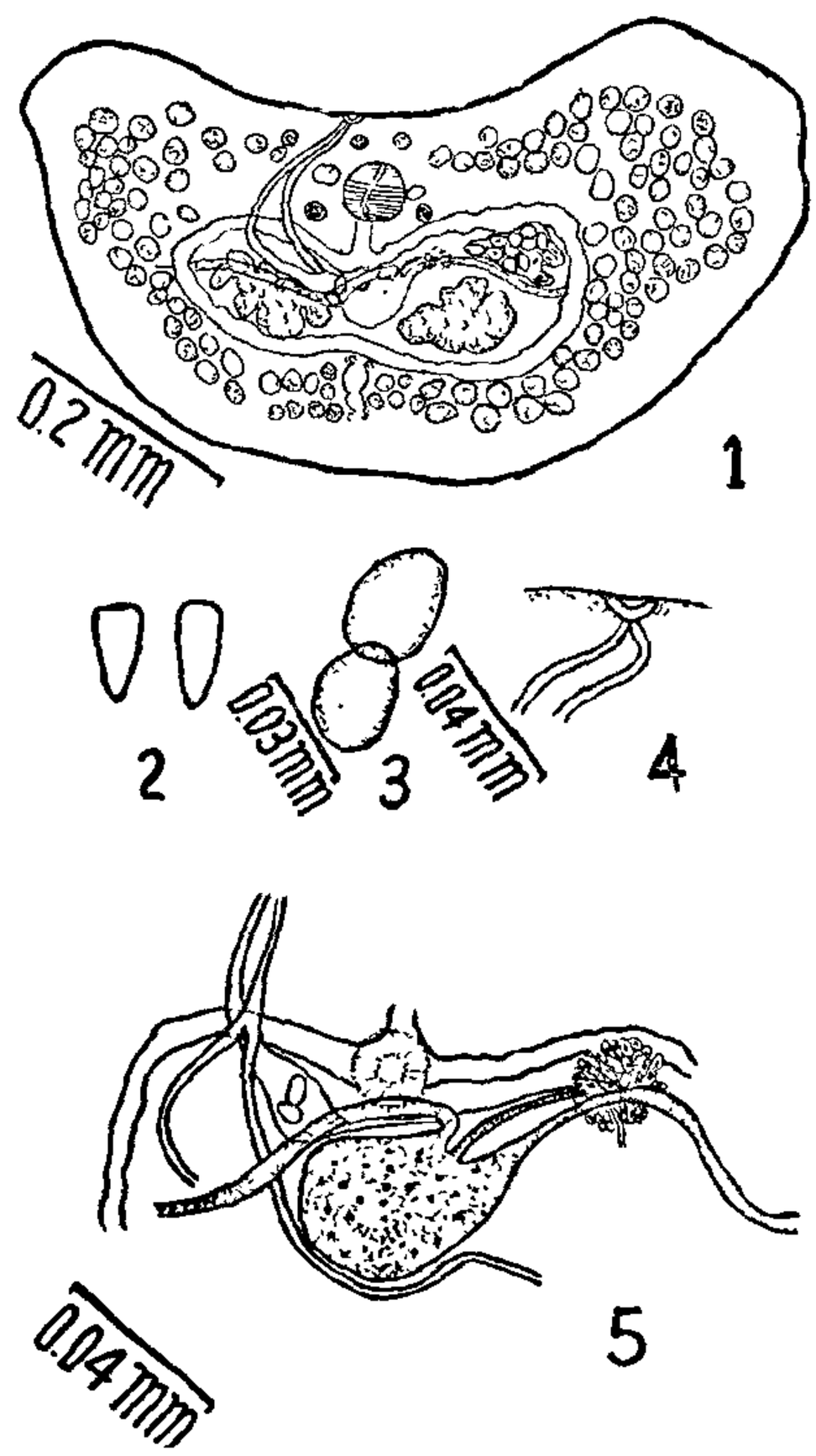
Transversotrema chauhani n.sp.

Host : *Nandus nandus* (Ham.); Host examined : 220; Host infected : 1; specimens collected : 2; Locality : Lucknow.

Body flattened, transversely elongated, concave anterior margin, spinose, spines triangular and equal, 0·30–0·44 × 0·64–0·71 mm. Eye spots, one pair, black, round, at the level of pharynx, 0·01 mm. Oral sucker absent. Pharynx subterminal, spherical, 0·04–0·05 × 0·05–0·06 mm. Oesophagus short, 0·03–



FIGS. 1–5. Fig. 1. *Transversoterma chauhani* n.sp. Fig. 2. Body spines enlarged. Fig. 3. Eggs. Fig. 4. Portion of body enlarged showing genital aperture. Fig. 5. Portion of body enlarged showing ootype complex, vitelline reservoir and portion of uterus.

0·04 mm. Intestinal caeca cyclocoelid, margins crenated, in median body region. Ventral sucker behind the pharynx, 0·028–0·030 mm in diameter. Ventral sucker half the size of pharynx.

Testes lobed, post-acetabular, intercaecal. Left testis 0·05–0·07 × 0·04–0·06 mm. Right testis 0·05–0·06 × 0·06–0·07 mm. Cirrus sac absent. Vesicula seminalis S-shaped, near left testis. Ejaculatory duct narrow, opening in genital atrium, at anterior body region. Ovary small, oval, diagonal to right testis, 0·050–0·054 × 0·05–0·06 mm. Laurer's canal not visible. Oviduct short, opening at ootype. Vitelline follicles extracaecal, confluent anteriorly. Two long yolk ducts, one from either body side, opening into vitelline reservoir. Uterus passing towards right, over intestinal caeca, parallel to ejaculatory duct, opening into genital atrium through short metraterm. Eggs, two, 0·030–0·033 × 0·025–0·029 mm. Excretory bladder short, tubular, opening outside through excretory pore. The genus *Transversotrema*, with *T. hassi* as the type, was erected by Witenberg[5] for worms, collected from an unidentified piscine host from Red sea. Subsequently, *T. patialensis* Crusz, Ratnayke and Sathananthan[1]; *T. larui* Velasquez[4]; *T. licinum* Manter[2] and *T. soparkari* Pande and Shukla[3] were described under the genus.

The present form differs from *T. hassi* in the presence of eye spots (absent in *T. hassi*) and diagonal ovary which is above right testis in *T. hassi*. In *T. licinum*, *T. soparkari* and *T. patialensis*, the vitelline follicles are not confluent in anterior region and are intercaecal also but in the present form they are confluent anteriorly and are extracaecal. In *T. lauri*, the body is oval and the pharynx and acetabulum are of same diameter but in the present form, it is semilunar and the pharynx is nearly double the size of acetabulum.

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ROLE OF THYMUS AND BONE MARROW CELLS IN IMMUNITY TO *NEMATOSPIROIDES DUBIUS* IN MICE*

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Singly sensitized thymus and bone marrow cells from donors infected with 100 *Nematospiroides dubius* larvae were injected into three groups of recipients A (40×10^4 thymus cells), B (40×10^4 bone marrow cells) and C (20×10^4 each of thymus and bone marrow cells mixture) and then challenged 14 days after cell transfer. It was found that recipients with mixture of thymus and bone marrow cells (group C) produced significant immunity in comparison with those with either cell population, alone.

Introduction

Transfer of adoptive immunity in recipients through different cell populations from infected donors concerning parasitic infections have been reviewed by Larsh[1]. Recently several workers[2–6] have successfully transferred immunity through a variety of cell populations in several infections.

In the case of *Nematospiroides dubius*, Cypess and Sanghvi, Vyas and Johri[8–10] transferred adoptive immunity in mice through spleen, peritoneal exudate, mesenteric lymph node and thymus cells respectively. Since thymus cells from sensitized donors were successfully employed to transfer delayed hypersensitivity in mice[11,12], it was, therefore, thought worthwhile to investigate whether thymus and bone marrow cells singly or together would transfer immunity in the *N. dubius* model.

Materials and Methods

Infective larvae of *N. dubius* were cultured according to the method of Van Zandt[13]. Thirty female Swiss albino mice of approximately 20–23 g wt. and 6–8 week old were inoculated per os with 100 *N. dubius* larvae; after 14 days thymus and bone marrow cells were collected and suspended in Ringer's solution and approximately 40×10^4 cells were injected intraperitoneally into 3 separate syngeneic groups within 4 hours after their collection. Group A received 40×10^4 thymus cells, group B 40×10^4 bone marrow cells and group C mixture of thymus (20×10^4) and bone marrow (20×10^4) cells. Groups D, E and F with unsensitized cells collected from a batch

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