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# Histopathological study of the cestode parasite, *Cotugnia* from *Gallus domesticus* at Kannad, Aurangabad (MS), India

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**Abstract**
The present exploration was undertaken to study the histopathology of a cestode *Cotugnia* from *Gallus domesticus* at Kannad Dist. Aurangabad, Maharashtra. The cestode worm adheres itself to host tissue and sucks the nourishment. The T. S. of intestine showed that the worm is attached to mucosal layer. Due to its attachment, intestinal mucosal layer was disturbed and appeared in broken condition. Besides, intestinal villi were also severely infected may lead to necrotic stage

**Keywords:** Histopathology, Aurangabad, *Cotugnia*, *Gallus domesticus*

## Introduction
Phylum Platyhelminthes includes animals with dorsoventrally flattened body hence the name flat worms (Verma and Prakash, 2020) [22]. This phylum is retained as such both in five and six kingdom systems (Verma 2016a, 2026b) [19] and is divided into three classes namely Turbellaria, Trematoda and Cestoda (Verma, 2017) [21]. The cestodes include tapeworms which are parasitic and provided with suckers and hooks. The body of a tapeworm is divided into scolex, neck and strobila. The strobila consists of immature, mature and gravid proglottids.

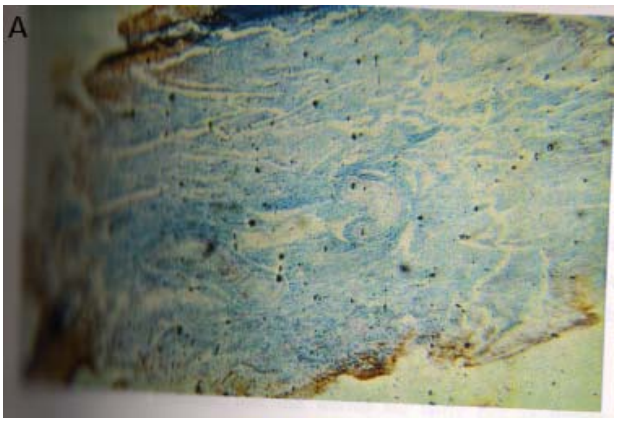
The genus *Cotugnia* was established by Diamare (1893) [16], with its type species *C. digonopora* (Pasquale, 1890) [12] from fowl. So far 40 species of *Cotugnia* have been reported (Shaikh, 2018) [13]. Rostellum of the parasite studied was armed with two rows of hooks. It has cup like muscular suckers. Each segment contains two sets of genital organs. A large number of researchers worked well on helminth parasites some of them are Shinde (1969) [14], Malhotra and Capoor (1983) [8], Jadhav *et al.,* (1994, 2003) [2, 3], Kharade and Shinde (1995) [5], Mahajan *et al.,* (1999) [7], Shinde *et al.,* (1999) [15], Verma *et al.,* (2006, 2007) [17, 18] and Thorat (2011) [16]. A far as the different aspects of histology of helminth is concerned, it is done by Mitra and Shinde (1980, 1989) [9, 10], Jha *et al.,* (1981) [4], Kishore and Sinha (1983) [6] and Padhi *et al.,* (1986) [11]. Yamaguti (1935, 1959) [23, 24] are the milestone of helminth research. The present exploration was undertaken to study the histopathology of a cestode *Cotugnia* from *Gallus domesticus* at Kannad Dist. Aurangabad, Maharashtra.

## Materials and Method
About a dozen intestines of Hen, *Gallus domesticus* were dissected and observed to examine the degree of infection of cestode parasite. Author found few intestines heavily infected with cestode parasites. Some cestode parasites were collected in 4% formalin, processed and stained for histopathological studies. The pieces of intestine along with attached worms fixed in fixative Bouin's fluid taking care that the intact parasites were not disturbed. The pieces of uninfected intestines were also fixed in Bouin's fluid. The preserved material from Bouin's fluid is isolated, washed with distilled water, dehydrated through graded alcohol, cleared in xylene and embedded in paraffin wax (m.p.58-60oc). After section cutting, stained with Mallory's triple stain, best slides selected and observed under microscope.

## Results and Discussion
Thirteen cestode parasites were collected from intestine of hen, *Gallus domesticus* at Kannad, Dist. Aurangabad. The worms were medium in size, scolex large, quadrangular in

shape; suckers somewhat oval, medium in size, four in numbers, arranged in two pairs at laterally; rostellum small in size, oval in shape, a circle of hooks present on rostellum; neck medium, wide, broader than long; mature segments broader than long, almost four times broader than long, each with a double set of reproductive organs with lateral margins; testes are 150-155 in numbers, variable in size, oval in shape, situated in posterior half of segment, entirely post-ovarian, in between longitudinal excretory canal, evenly distributed; cirrus pouch small, cylindrical, arterially directed, opens marginally on each side; cirrus is thin narrow tube, short, containing in cirrus pouch; ovary with irregular margins placed just anterior to middle of segment; vagina thin tube, posterior to cirrus pouch, straight runs transversely, reaches and opens into ootype, which is small, oval; genital pore small, oval marginal, bilateral, placed middle of segment; vitelline gland medium, post ovarian, oval; longitudinal excretory canals thin.

Microscopic observations revealed that the host tissues are damaged by the cestode parasite. The cestode parasite studied has the penetrative scolex and well developed, worm easily adhere itself to host tissue. The scolex having rostellar muscular pad with spines and four suckers, help them adhering to the intestine tissues. The T. S. of intestine showed that the worm is attached to mucosal layer. Due to its attachment, intestinal mucosal layer was disturbed and appeared in broken condition. Besides, intestinal villi were also severely infected may lead to necrotic stage. The worms were found firmly attached to mucosal wall and started the formation of pad at the base of mucosal wall. A few worms were found to cause disturbances in physiological conditions of gut lining of the host. The worms were found firmly attached to villi of intestine and the necrosis of host tissue was also observed. The histochemical studies revealed that the worms are fairly rich in proteins, carbohydrates and fats as the lumen of host contains a sufficient amount of proteins, carbohydrates and fats. Thus, author concluded that the rich environment of host intestine is favourable for development and growth and development of worms. The parasites were found to maintain good histopathological relationship with the host.



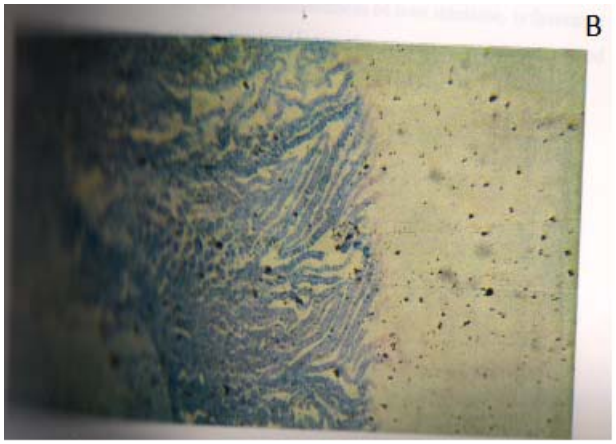




**Fig 1:** (A) Attached worm with host intestine and (B) intestine damage caused by parasite

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