

# Per-Operative Use Of Albendazole To Prevent Fistula Due To Ascarides

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## Citation

M Mir, B Bali, R Mir. *Per-Operative Use Of Albendazole To Prevent Fistula Due To Ascarides*. The Internet Journal of Surgery. 2012 Volume 28 Number 2.

## Abstract

**Background:** Keeping in view the known fact that the worms have a propensity to explore a small opening and they try to exit through the suture line causing anastomotic disruption subsequently leading to fistula, we conducted a prospective study with the aim to evaluate the role of per-operative use of albendazole to prevent fistula development due to ascarides while performing enterotomy and resection with anastomosis. **Material and Methods:** In our study, 80 patients underwent surgical intervention (enterotomy/resection and anastomosis) for acute intestinal obstruction due to ascarides. Per-operative instillation of albendazole was done in 40 patients (study group) and our control group comprised the remaining 40 patients. Every alternate patient was included in study and control group. The data collected was tabulated and the odds ratio calculated. **Results:** In our study group, one patient developed a fistula (2.5%) as compared to 6 (15%) in our control group. The odds ratio of 0.1453 suggests that the development of fistula can be prevented by 14.53% due to per-operative use of albendazole while performing enterotomy or resection with anastomosis. **Conclusion:** Hence we concluded in our study that development of enterocutaneous fistula due to ascarides is significantly preventable with per-operative instillation of albendazole in the gut. We recommend per-operative use of albendazole in gut surgeries to prevent anastomotic disruption due to ascarides especially in endemic areas of ascaris infestation.

## INTRODUCTION

More than a billion people world wide are infected with one or more species of intestinal nematodes. *Ascaris* is one of the parasites most commonly seen in human beings and it is estimated that a quarter of the world population is infected.<sup>1</sup> Massive infestation in children results in serious complications, requiring surgical intervention. Intestinal obstruction has been estimated to occur in 2/1000 ascaris infested children per year. It can happen at any age, being more frequent in children. Every year 60,000 deaths are attributed to this infection. The overall incidence of obstruction is 1 in 500 children. Bowel obstruction due to ascaris occurs in 35% of all cases of bowel obstruction. Bowel obstruction can be complicated by intussusception, perforation and gangrene of bowel. It can also lead to acute appendicitis and appendicular perforation.<sup>2-6</sup>

Mebendazole, albendazole, pyrantal pamoate and levimezole are effective drugs for mass therapy to control ascariasis in endemic area. Mebendazole ( $C_{16}H_{13}N_3O_2$ ) causes slow immobilization and death of the worm by selective and irreversible blockade of glucose uptake. Oral dosage is 100mg twice a day for three days or 500mg stat dose.

Albendazole ( $C_{12}H_{15}N_3O_2S$ ) is a broad-spectrum antihelminthic, decreases ATP generation, depletes energy, immobilizes the worm and finally causes death of the worm. Oral dosage is 200mg stat for children below the age of 2 years and 400mg stat for children above the age of 2 years and adults. It is contraindicated in pregnancy. Piperazine and pyrantal pamoate are contra-indicated in presence of abdominal pain whereas mebendazole and albendazole can be given.

Obstruction due to worms can be managed conservatively by nasogastric suction, intravenous fluids and proctoclysis enemas. Operative management is indicated when there is a bolus of worms forming a lump that remains unchanged in position for more than 24 hours. Other indications include tender abdomen, bleeding per rectum and rising pulse rate. Operative management includes milking of worms into the large gut, enterotomy and occasionally resection and anastomosis of the gut.<sup>2-6</sup>

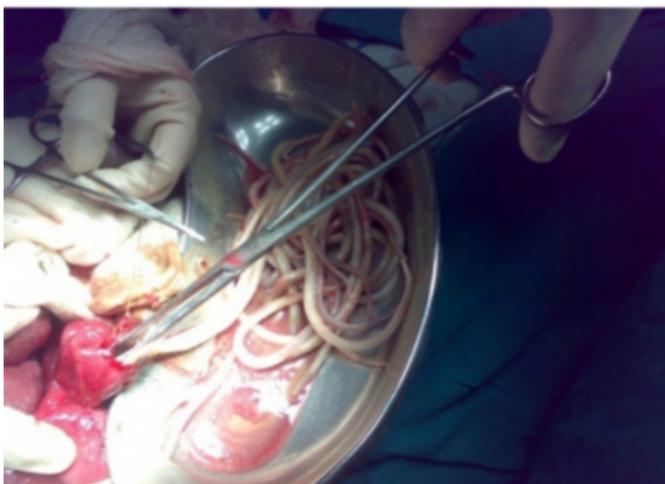
*Ascaris lumbricoides* possesses the capacity to invade spaces, conduits and cavities in the human body, known as erratic or ectopic ascariasis<sup>7-9</sup>. It is a known fact that ascarides disrupt anastomosis.<sup>10</sup>

**MATERIAL AND METHODS**

This prospective study was conducted in the Department of Surgery of the GMC Srinagar over a period of 18 months. Keeping in view the known fact that the worms have the propensity to explore a small opening and they try to exit through the suture line causing anastomotic disruption subsequently leading to fistula, we conducted a prospective study with the aim to evaluate the role of per-operative use of albendazole to prevent fistula development due to ascarides while performing enterotomy and resection with anastomosis. In our study, 80 patients underwent surgical intervention (enterotomy/resection and anastomosis) for acute intestinal obstruction due to ascarides. After performing enterotomy/resection and retrieval of worms (image 1), per-operative instillation of albendazole (image 2) was done in 40 patients (study group) and our control group comprised the remaining 40 patients. Every alternate patient was included in study and control group. 10ml (400mg) of albendazole were instilled into the proximal loop and same dose into the distal loop (image 2) at the time of enterotomy and resection with anastomosis via catheter after the retrieval of the worms. The patients were observed during their hospital stay for the signs of anastomotic disruption and development of fistula. The results were compared with those of the control group. The data collected was tabulated and the odds ratio calculated.

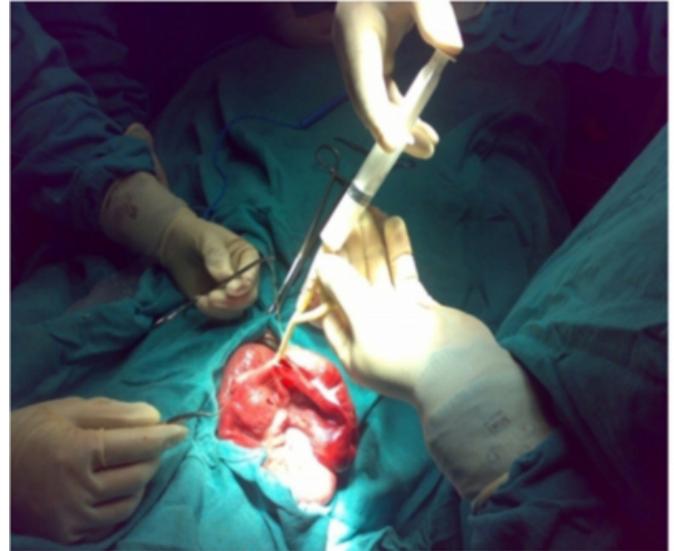
**Figure 1**

Image 1: Retrieval of worms



**Figure 2**

Image 2: Instillation of albendazole into the gut via catheter



**RESULTS**

The results of the study are shown in Table 1 and Table 2

**Figure 3**

Table 1

Group	N	Resection and anastomosis	Enterotomy	Fistula	Mortality
Study group	40	16	24	1	0
Control group	40	12	28	6	1

**Figure 4**

Table 2

Group	Fistula	No fistula	Total
Study Group	1	39	40
Control Group	6	34	40
Total	7	73	80

In our study group, one patient (2.5%) developed a fistula as compared to 6 (15%) in our control group (table 1 and 2). In three patients, worms came through the fistula on the floor of the wound (image 3). The odds ratio of 0.1453 suggests that the development of fistula can be prevented by 14.53% due to per-operative use of albendazole while performing enterotomy or resection with anastomosis (table 2).

Image 3: Ascaris coming out of an enterocutaneous fistula

**Figure 5**



## **DISCUSSION**

Kashmir is an endemic area for ascariasis and in our surgical wards we often face many of its surgical complications. We also encounter intestinal ascariasis while performing elective surgeries on the gastrointestinal tract and there remains a threat that the worms may exit through the suture line of repaired gut, causing anastomotic disruption and subsequently leading to fistula, which is a known fact<sup>7-10</sup>. In our study group, one patient developed a fistula (2.5%), while in our control group, six patients developed a fistula (15%). The odds ratio of 0.1453 suggests that the development of fistula can be prevented by 14.53% due to per-operative use of albendazole while performing enterotomy or resection with anastomosis. Fistula

development was significantly prevented by per-operative instillation of albendazole into the gut. There is a need of further studies to explore the statistically significant results, since so far there is not much literature regarding the use of albendazole per-operatively.

## **CONCLUSION**

We concluded in our study that the development of fistula due to ascarides is significantly preventable with per-operative instillation of albendazole in the gut. Hence this study strongly recommends per-operative use of albendazole in gut surgeries to prevent anastomotic disruption due to ascarides especially in endemic areas of ascariasis; however, further studies of such kind are required.

## **References**

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