

# Modulation of Inflammatory Bowel Disease by helminths

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## INTRODUCTION

Many people in developing countries suffer from worm infections, whilst in industrialized countries worm infections are rarer. In contrast, there are more autoimmune diseases such as Inflammatory Bowel Disease (IBD) and Asthma in industrialized countries. Is there a link between worms and protection against autoimmune diseases?

To answer this question we compared the severity of IBD in: Naïve mice, helminth infected mice and helminth infected and drug (Cobantril) treated mice.



Figure 2: Worm infections are serious problems in developing countries

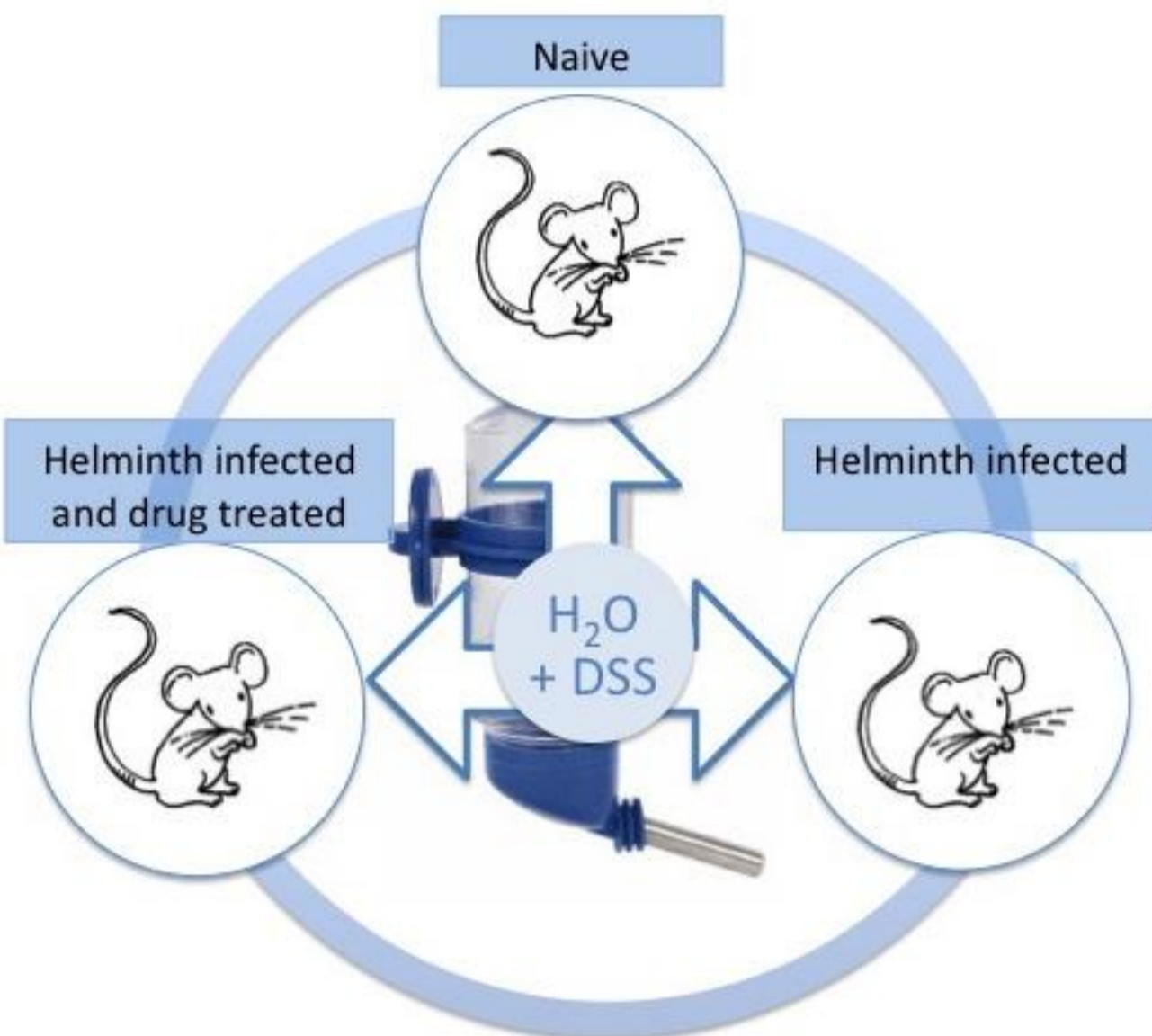


Figure 1: Induction of DSS-colitis in our mice.

## OBSERVATIONS AND RESULTS

Helminth infected mice lost the most weight (Figure 3) and had the shortest colon (Figure 4) indicating severe IBD. Microscopic analysis of histological tissue sections also showed that the infected and the cobantril treated mice had colons that were much more damaged than these of the naïve mice (Figure 7-9). This was evidenced by:

- Loss of crypts
- Increased infiltration of inflammatory cells

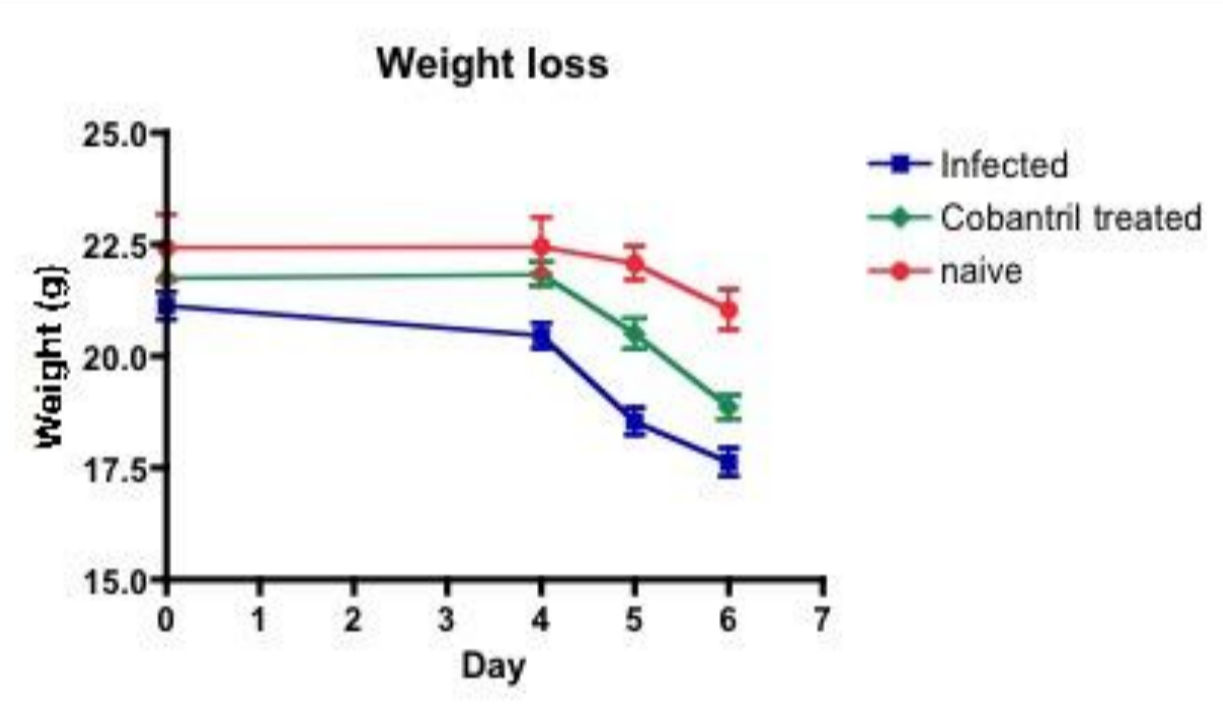


Figure 3: DSS-induced weight loss in our mice

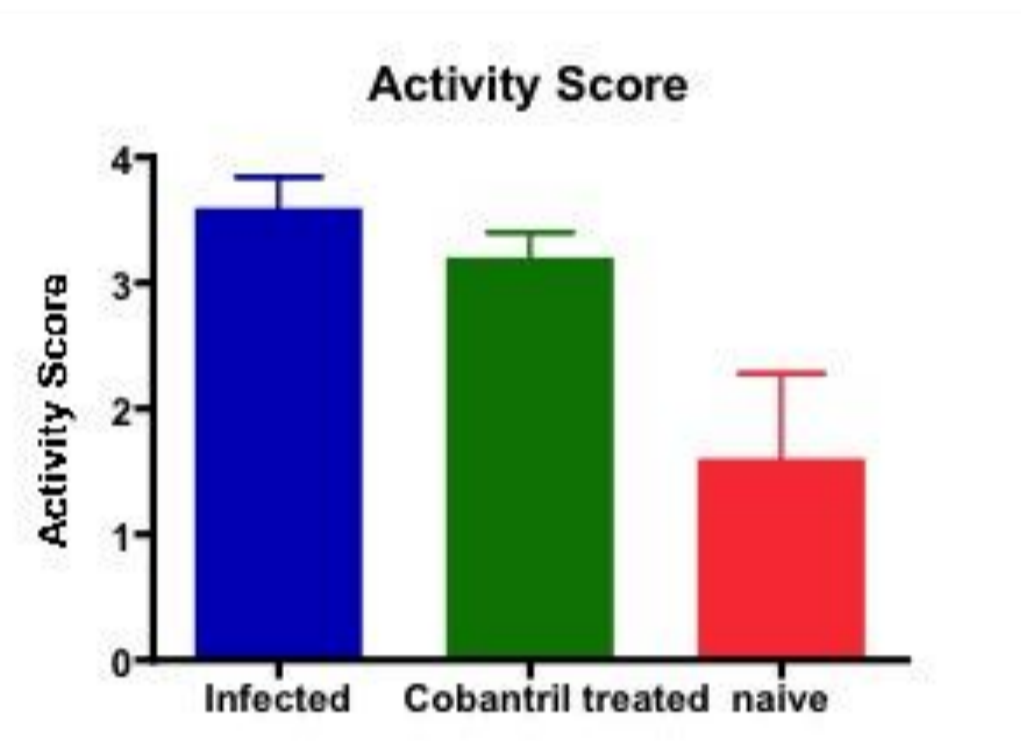


Figure 5: Activity Score indicating severity of colitis

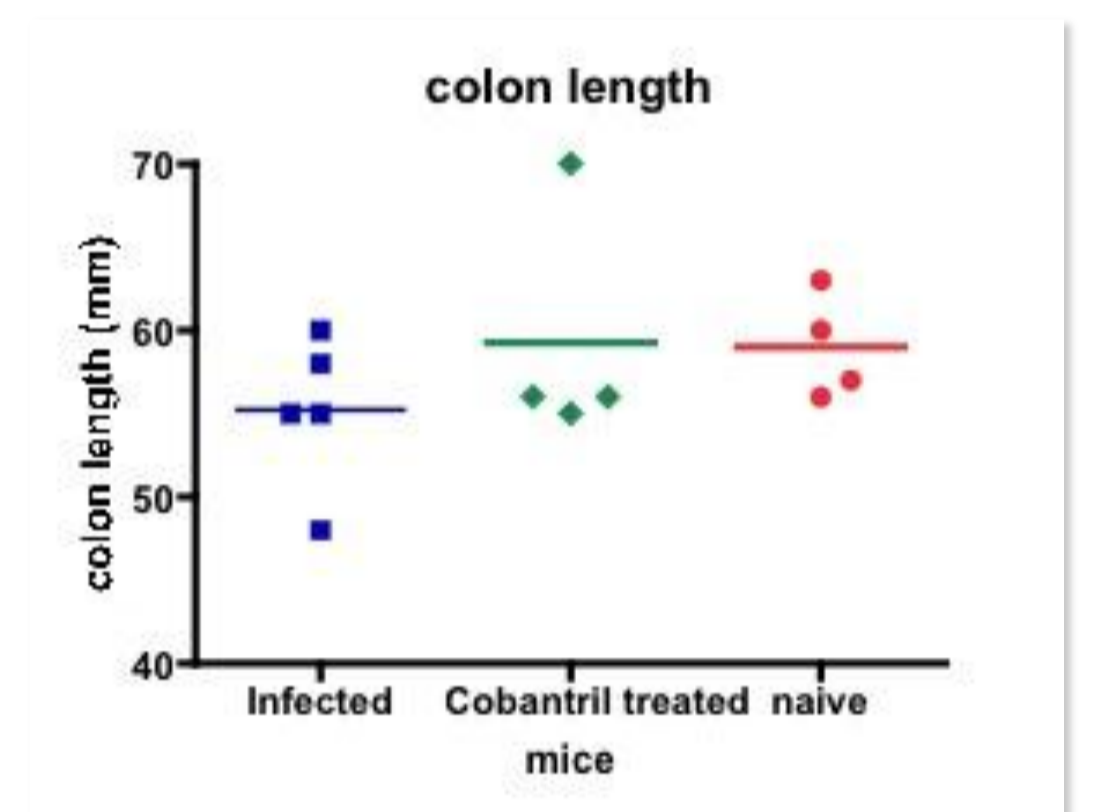


Figure 4: DSS-induced colon length



Figure 6: Helminth

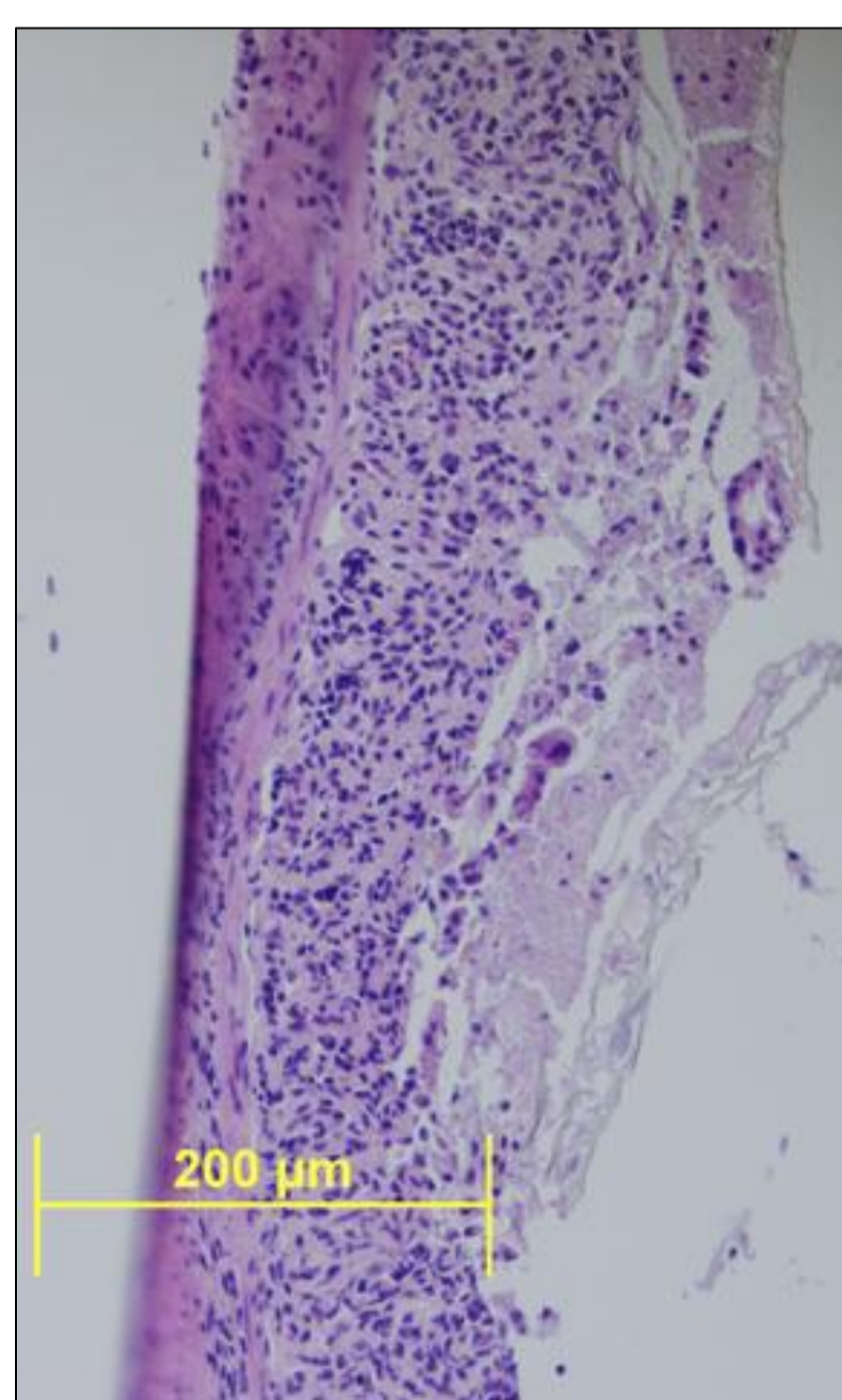


Figure 7: The colon of an injected mouse prepared with DSS

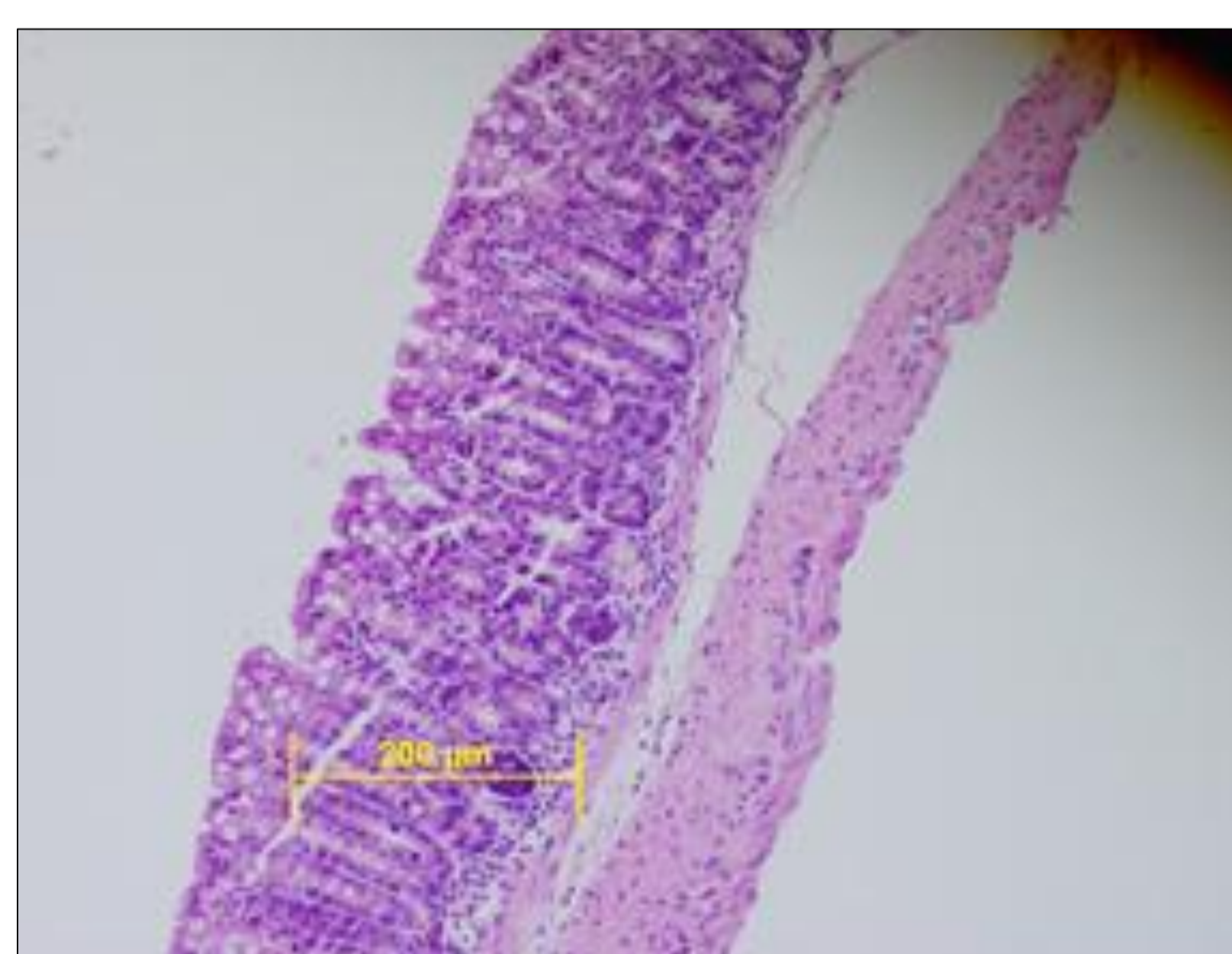


Figure 8: The colon of a naïve mouse prepared with DSS

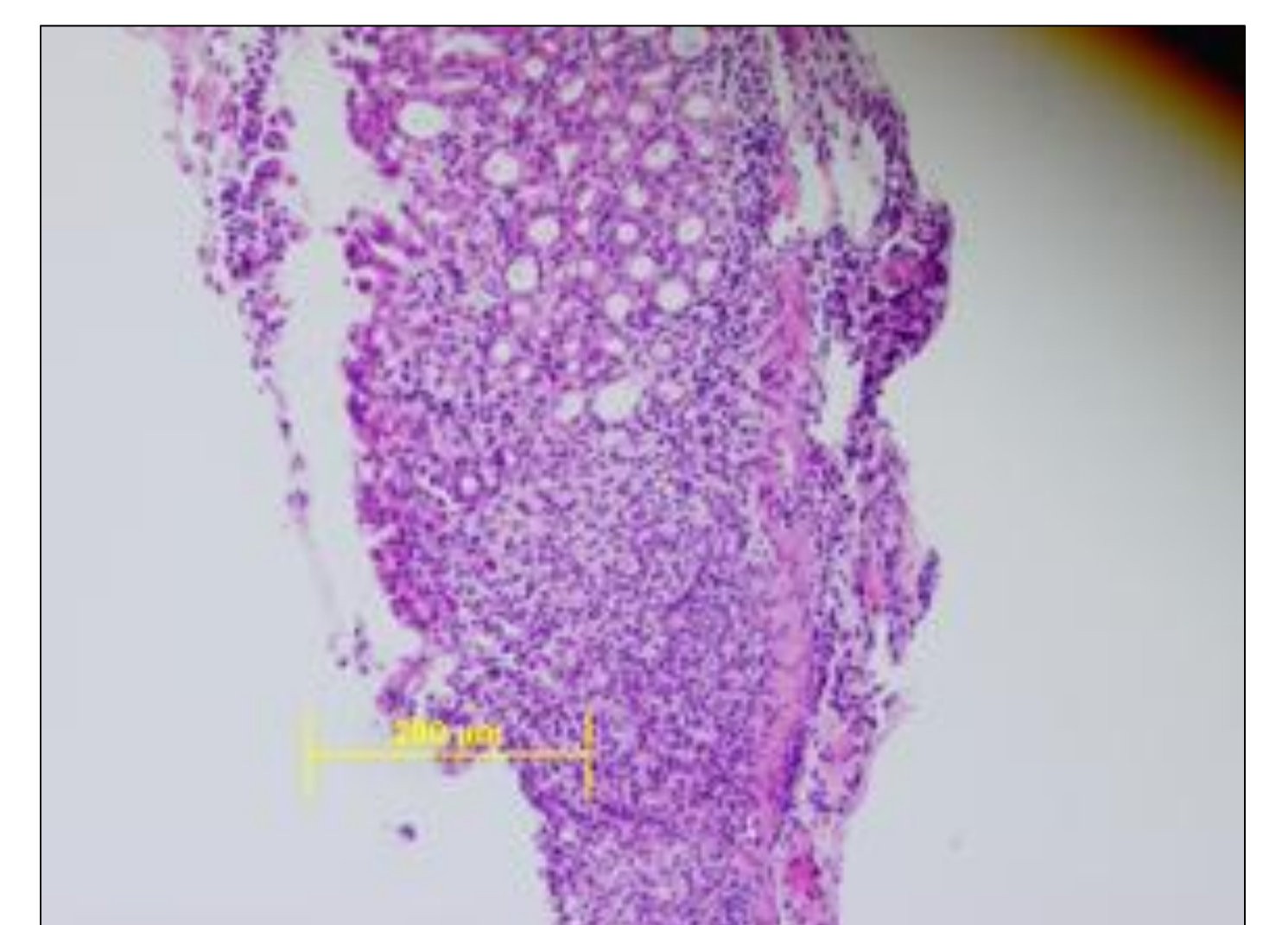


Figure 9: The colon of a cobantril treated mouse

## DISCUSSION AND CONCLUSION

IBD was worsened by current or previous helminth infection. These findings are in contrast to our original hypothesis. Now we need to do more experiments to understand the mechanisms responsible for these observations.