

Effects Of Feeding Male Albino Mice On The Liver Of A Buffalo Infected With *Fasciola Gigantica* Parasite On Some Blood Components

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Abstract

The current study showed that the livers of infected animals with *Fasciola gigantica* unfit for human consumption. This study included the use of smashed liver of infected buffalo appeared that infected liver has bad effects on blood components. Results showed a decrease in numbers of R.B.C. cells, Hb value and P.V.C. while there was an increase in numbers of W.B.C. cells.

Keywords: *Fasciola gigantica*, Albino mice, Blood components, Parasite, Feedig.

INTRODUCTION

Under the laws administered by the Food and Drug Administration (FDA), a food is adulterated if it contains a poisonous or otherwise harmful substance that is not an inherent natural constituent of the food itself, in an amount that poses reasonable possibility of injury to health for example, a toxin produced by a fungus that has contaminated a food, or a pathogenic bacterium or virus, if the amount present in the food may be injurious to health (Lampel *et al.*, 2012).

Liver fluke infections are widespread in all parts of the world, and they affect both humans and animals. The disease is caused by important species as *fasciola hepatica* and *fasciola gigantica*, Fascioliasis is a secondary zoonotic infectious disease that affects humans, as it has been included among the human parasites of public health importance by the World Health Organization. (WHO, 2007).

Our scientific understanding of pathogenic microorganisms and their toxins is continually advancing. When scientific evidence shows that a particular microorganism or its toxins can cause foodborne illness, the FDA may consider that microorganism to be capable of causing a food to be adulterated (Lampel *et al.*, 2012).

Tropical fascioliasis is a dangerous disease that mainly affects domesticated livestock, especially buffaloes and cows, causing significant losses in animal production and even agricultural production (Spithill *et al.*, 1999). This, in turn, negatively affects industries that depend on livestock for their production, and the result is huge economic losses due to injured animals (Malone *et al.*, 1998).

Due to the lacking of studies on the effects of remnants and secretions of parasites on people who eating livers infected with *F. gigantica*.

Current study aimed to determining the indirect effect of these substances by study this effect on male's laboratory mice.

MATERIALS & METHODS

Liver of infected buffalo with *F. gigantica* was brought from Basrah Massacre. Liver was cut into small pieces and the it was squashed by electric mixer, this squashrd was filtered and put in small glass container, and placed in the refrigerator to preserve it from damage (Ali, 2003).

Eight male's laboratory mice were used, type *Mus musculus*, BALB/c strain weighting (20 -25) g dosage with 0.5 ml of the filtrate, while the second group represented the control

animals.

The dosage continues for seven days. Blood was withdrawing from mice for the purpose of measuring the ratio of blood components.

The data obtained was analyzed by using statistical program SPSS. The ANOVA test was used to analyze the significant differences between the haematological parameters of samples. Value of P < 0.05 were considered significant results was expressed as means \pm SD.

RESULTS

The table (1) and figure (1) show the results of how blood parameters in male laboratory mice are affected by their feeding on buffalo's livers with the parasite *Fasciola gigantica*. Results of the current study showed a significant decreasing in the Packed Cell Volume (P.C.V.) but non-significant decreasing in total Red Blood Cells counts (R.B.C.) and Haemoglobin Concentration (Hb). Results also showed increasing in total White Blood Cells counts (W. B.C) but c non-significant.

As shown in table (1) and figure (1).

DISCUSSION

The results of the current study showed a decrease in the number of red blood cells and the concentration of hemoglobin, but it was not significant, but it recorded a significant decrease in the value of hematocrit or packed cells volume (P.C.V.).

There are several reasons behind this decline. Pathogens range from living organisms such as bacteria, protozoa, worms, and fungi, to non-living substances, such as prions and natural toxins (Lampel *et al.*, 2012). As the bone marrow is the main source of production of red blood cells in the body and the constant need to compensate for what is destroyed from the red blood cells is for the cells of the bone marrow to become among the fastest growing and proliferating cells and therefore, as expected, the speed of their maturation and reproduction is greatly affected by the nutritional status of the organism (Guyton & Hall, 1998). *Anisakis* remnants in cooked or previously frozen fish, and some fish handlers have reportedly become hypersensitive to touching infected fish, Among the symptoms that accompany eating contaminated meat that contain remnants of parasitic worms and their toxins: nausea, vomiting, stomach discomfort, diarrhea, loss of appetite or its change (Lampel *et al.*, 2012). Where poor nutrition is caused by a deficiency in vitamin B₁₂ and folic acid, which are

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especially necessary for the maturation of red blood cells, and the nutritional deficiency may affect the red blood cells becoming thinly covered and irregular in shape and their fragility leads to a short life that is half or a third of the life of normal cells (Guyton & Hall, 1998). And this may be related to destruction of cells and, or decrease in size of cells due to the adverse effects of toxic secretion of parasite in the infected liver, that effects lead to degradation of cell membrane and its contents (khaleel, 2010).

There was an increase in Leukocytes (W.B.C.) this may be due to cellular immunity as responding of cells that able to attached antigen and encircle it Finally, digest it by phagocytosis in addition to Lymphocytes activity such as T-Lymphocyte and plasma cell (MacLaren & Lacani, 1982; Tizard, 1987). The substances secreted by the parasite inside the infected liver absorbed by the intestine and returned to liver, and this stimulate the immune system (Al – Ali, 2002; Al – Nazal, 2005), also Eosinophils may respond and a granuloma (nodule) forms Lampel *et al.*, 2012).

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Tables and Figures

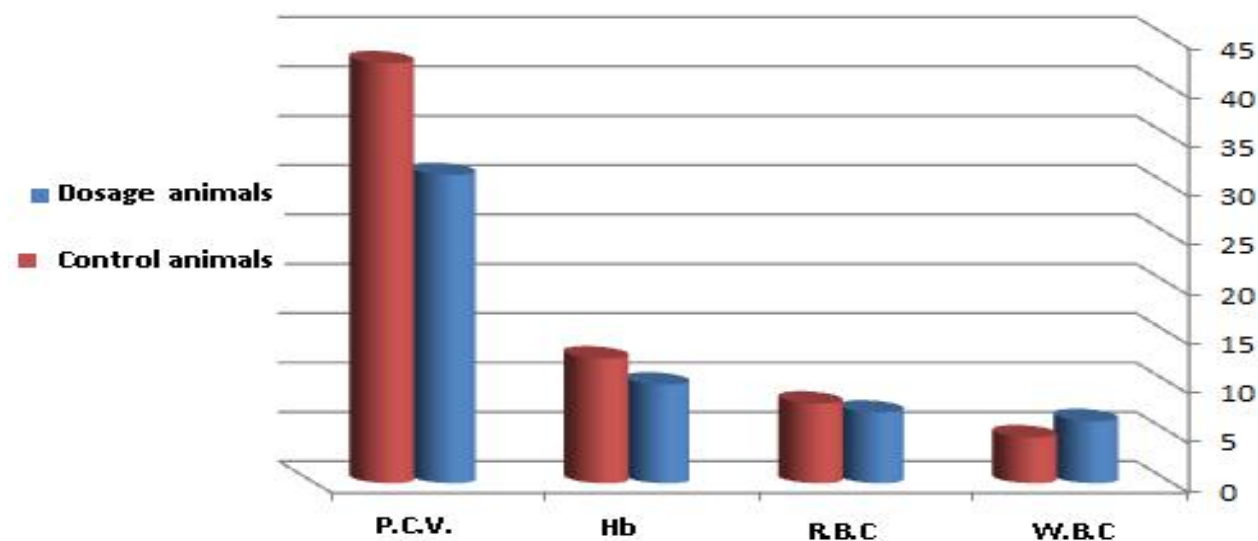


Figure 1. Effects of remnants and secretions of *Fasciola gigantica* parasite on some Blood Components in male's laboratory mice

Table 1. Effects of remnants and secretions of *Fasciola gigantica* parasite on some Blood Components in male laboratory mice

Treatment	W.B.C counts (x 10 ³ cells/mm ³ blood)	R.B.C counts (x 10 ⁶ cells / mm ³ blood)	Hb (g /dl blood)	P.C.V. (ml/dl blood)
Dosage animals	6.3000 ± 2.2600	7.1700 ± 1.3488	10.000 ± 2.3194	31.225* ± 5.9994
Non dosage animals	4.6500 ± 0.3873	8.0750 ± 0.4272	12.6500 ± 0.9327	42.5500 ± 0.9294

*Significant differences (p ≤ 0.05).