

**Title:** RABIES IMMUNOGLOBULIN SAVES LIFE OF A SIX YEARS OLD WITH CATEGORY III DOG BITE - A RARE INDICATION FOR INTESTINAL RESECTION, IN SUB HIMALAYAN REGION, INDIA

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## Keywords

**Abstract** Small bowel perforation is an emergency having an extremely high mortality between 10and 36.5%. In children most common cause of penetrating abdominal injury are seat belt injuries in vehicular collisions, bicycle handle mishaps, falls and sports injury. In our study, abdominal trauma due to dog bite is quite an unusual presentation as the scare of rabies along with the risk of infections makes the situation grave.

## Case Report

## RABIES IMMUNOGLOBULIN SAVES LIFE OF A SIX YEARS OLD WITH CATEGORY III DOG BITE - A RARE INDICATION FOR INTESTINAL RESECTION, IN SUB HIMALAYAN REGION, INDIA

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### Introduction

Small bowel perforation is an emergency having an extremely high mortality between 10 and 36.5%<sup>1</sup>. In children most common cause of penetrating abdominal injury are seat belt injuries in vehicular collisions, bicycle handle mishaps, falls and sports injury<sup>2</sup>. In our study, abdominal trauma due to dog bite is quite an unusual presentation as the scare of rabies along with the risk of infections makes the situation grave.

Rabies an acute viral zoonotic disease poses a potential threat to more than 3.3 billion people worldwide<sup>3</sup>. In India alone, 20,000 deaths and 1.7 million cases are estimated to occur each year<sup>4</sup>. The current case was fighting a fierce battle against dual odds firstly, risk of fatal disease rabies if not provided with both active and passive immunization and secondly, likelihood of sepsis due to evisceration if not provided timely surgical intervention.

### Case Report

A six year old female child, presented with history of unprovoked attack by five stray dogs resulting in multiple lacerated wounds on scalp (temporal region), neck (belly of sterno cleido mastoid), back of chest, thigh and anterior abdominal wall- left iliac fossa with herniation of gut from the wound. There was no history of loss of consciousness, vomiting and seizure. On examination the child was conscious, cooperative, febrile with pulse rate of 146/min, had pallor, was in severe pain with normal blood pressure and respiratory rate. The wounds were thoroughly cleansed under cover of intravenous antibiotics. The following investigations were done - wound scrapings and pus for culture sensitivity as well as histopathology investigation, blood samples for haematological investigation and culture sensitivity. The histological examination revealed non-specific inflammations as leukocytosis, lymphocytosis, granulocytosis and thrombocytosis were seen. The culture from pus and blood were sterile.

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The hepatic and renal function tests were within normal limits. As per the WHO classification of wounds for rabies management, the child had category III wounds and was in need of passive as well and active immunization prior to suturing. The post exposure prophylaxis administered as injection of cell culture vaccine 1 ml intramuscularly in the deltoid on the 0,3,7,14 and 28<sup>th</sup> day. The human immunoglobulin 360 international unit (20 I.U./kg ) diluted in 20 ml normal saline was infiltrated maximum around the wounds and rest was administered intramuscularly on antero-lateral aspect of thigh. Dog bite leading to evisceration of ileum with ileal perforation with mesocolic tears with mesocolic lymphadenopathy was an indication for exploratory laprotomy. Surgical intervention was undertaken for resection of gangrenous ileum and primary closure of ileum along with repair of mesocolic tear of descending colon and biopsy of mesenteric nodes. The child was maintained on intravenous fluids till peristaltic activity returned, then gradually converted to normal diet. The temperature, pulse, respiratory rate, blood pressure, CVP and urine output were monitored carefully. Systemic antibiotics were continued and finally discharged following three weeks of hospital stay with healthy looking wounds and normal parameters on investigations.

### Discussion

Worldwide, rabies kills 55,000 people each year<sup>3</sup>. Over 95% deaths occur in resource poor nations of Asia and Africa. Children under the age of 15 years account for nearly 30%-60% of reported rabies<sup>5</sup>. In India, 60% of the dogs are considered to be "neighbourhood dogs" which are partially or wholly dependent on people for food and shelter and unrestricted in their movements. The dog population of India is 25 million and majority of which is not protected against rabies<sup>5</sup>.

Although 15 million people worldwide receive post-exposure prophylaxis every year, many rabies victim



Preoperative image of dog bitten wounds on neck, face and dressing of wounds on scalp and abdomen.

die because they can't access treatment<sup>2</sup>. In the absence of post exposure prophylaxis it is estimated that 3,27,000 persons would die each year from rabies in Asia and Africa<sup>5</sup>.

In India, for management of rabies there has been a tremendous improvement in availability and utilization of post exposure prophylaxis in government set up<sup>4</sup>. The administration of rabies immunoglobulins (RIGs), after thorough cleansing of wounds, is life saving as their timely and proper administration neutralizes the virus at the entry point and aborts the risk of developing rabies. This life saving effect of RIGs in our study is in accordance to the findings of study at Hydrabad where out of 17 subjects with severe head wounds, 3 patients who received only vaccine died while all patients who received RIGs survived<sup>6</sup>.

Diffuse septic peritonitis resulting from small bowel perforation is a frequently encountered problem in tropics and continues to be associated with high mortality<sup>1</sup>. In our current study, once the patient became immunologically protected against rabies her wounds became healthy and she had an uneventful recovery, an observation similar to a case reported from Mumbai<sup>7</sup>.

Rabies hits hardest in remote locations; the under reporting of rabies prevents mobilization of resources from the international community for the elimination of



Post operative dog bites healed with keloid on back, neck, back and thigh.(left to right)

human dog mediated rabies. The annual estimated economic burden of the disease in Asian and African countries is approximately US \$583.5 million<sup>5</sup>.

Communication and cooperation among researchers, human health workers wildlife experts, veterinarians, and multiple government sectors will be required to reduce both the cost and difficulty of receiving treatment, to roll out enhanced surveillance and establish relevant diagnostic testing.

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