Title: DOG BITE ON FACE BY RABID DOG : A CASE REPORT

Author: **Anuja Santosh Kulkarni1, S.N. Madhusudana2, Arunesh Gupta3. Uma Natraj4**

1. Assistant DMO and consultant, Department of ENT and Head Surgery, J.R. Hospital, W. rly. Mumbai.
2. Head, WHO Collaborating Centre for reference and research on rabies, Department of Neurology, NIMHANS, Bangalore
3. Hon. Visiting Consultant, J.R. Hospital, W. rly. Mumbai
4. Senior Divisional Medical Officer and consultant, Department of ENT and Head Surgery, J.R. Hospital, W. rly. Mumbai

Keywords Rabid dog, Class III dog bite, Immuno diagnostic test, Rabies antibody titre test

Abstract The purpose of this case report is to create awareness about management of rabid dog bite on face for emphasising the importance of immunodiagnostic test such as rabies antibody titre test in its management. A fifty six year old male presented eight days after unprovoked class 3 dog bite on face by stray, rabid dog which resulted in loss of lower one third of lateral nasal wall on the left side, entire left sided nasalala including segment of columella.

Case Report

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Abstract

The purpose of this case report is to create awareness about management of rabid dog bite on face for emphasising the importance of immunodiagnostic test such as rabies antibody titre test in its management. A fifty six years old male presented eight days after unprovoked, class 3 dog bite on face by stray, rabid dog which resulted in loss of lower one third of lateral nasal wall on the left side, entire left sided nasal ala including anterior segment of columella.

Key Words: Rabid dog, Class3 dog bite, Immunodiagnostic test, Rabies antibody titre test

A fifty six years old male patient presented with history of unprovoked, rabid, stray dog bite on face eight days back which resulted in nasal deformity following complete loss of lower one third of lateral nasal wall on the left side including entire left sided nasal ala and anterior segment of columella. This was followed by history of crusting, foul smelling discharge from wound. There was no history suggestive of hydrophobia, altered behavior, irritability or of excessive drooling of saliva. (Fig1).

Fig1: Clinical photograph of patient post rabid dog bite depicting a well defined approximately 1.5x1.5 centimeter sized defect over left nasal ala with loss of anterior segment of columella showing ragged edges with rolled out margins covered with blackish debris. Nasal mucosa exposed to exterior through the defect. Surrounding skin appears highly inflamed. Another contused lacerated wound noticed approximately 1 X 0.1 centimeter in size over left infra orbital region covered with scab.

The patient had received only two doses of active immunization in the form of human diploid cell culture vaccine before and not received passive immunization before being actively immunized.

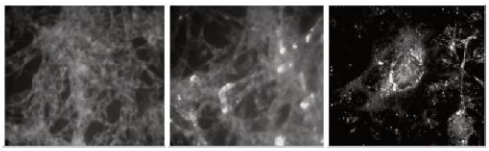

Fig 2 : a) Rapid Fluorescent Focus Inhibition Test (RFFIT) Normal (cell control)
b) Rapid Fluorescent Focus Inhibition Test (RFFIT) 50% end point (Note fluorescent foci in 50% cells)
c) Rapid Fluorescent Focus Inhibition Test (RFFIT) Virus control (Note fluorescent foci in 100 % cells)

Following specific investigations were done.

- Serological test for Hepatitis B, HIV1,2
- Wound scrapings for KOH mount
- Pus from wound for culture sensitivity
- Wound scrapings for histopathological examination
- Rabies antibody titre test at WHO Collaborating Centre for Reference and Research on Rabies NIMHANS, Bangalore, India

We followed WHO guideline for class 3 dog bite. Patient was passively immunized by administration of Human rabies immunoglobulin 20IU/Kg, Half and more intra lesional and rest deep intramuscular in the gluteal region, followed by a booster dose of active immunization i.e. antirabies vaccine over and above the routine immunization schedule.

[1]Asst. DMO and consultant, Dept of ENT and Head and Neck Surgery, J R Hospital,W Rly, Mumbai.
[2]Head, WHO Collaborating Centre for Reference and Research on Rabies, Dept of Neurovirology, NIMHANS, Bangalore.
[3]Hon. Visiting Consultant, J R Hospital W.Rly, Mumbai Central, Mumbai.
[4]Senior Divisional Medical Officer & consultant Dept of ENT and Head and Neck Surgery, J R Hospital,W Rly, Mumbai

Patient's serum sample was then subjected to special immunodiagnostic test such as rabies antibody titre as per consultation with neurovirology department and WHO collaborating centre for reference and research on rabies, at NIMHANS, Bangalore, India (August 2010).

Thus the investigations were done and reports made available.

- Patient's sample was negative for Hepatitis B, HIV1 &2
- Wound scrapings for KOH mount showed dermatophyte hyphae
- Culture sensitivity report from wound showed evidence of growth of *Staphylococci* sensitive to Methiceillin, Amox clav, Cephotaxime, Piptaz, Ticarcillin+ Clavulanic acid, Cefuroxime
- Histological examination of wound scrapings revealed non specific inflammation
- Rabies antibody Titre Test, (at Neurovirology Department,NIMHANS) showed inadequate antibody titres (titres less than 0.5IU/ml in the sample) suggesting susceptibility to rabies.

As the immunodiagnostic test after the passive immunization was suggestive of inadequate antibody titres, another booster dose of antirabies vaccine was given after a week. Subsequently after one week

Fig3: Clinical photograph of patient after course of IV antibiotics and antifungal and thourough local wound care showing healthy wound, columellar scarring and also showing the infraorbital wound being completely healed.

Fig 4: Clinical photograph of patient one month after flap division post surgical reconstruction of defect by paramedian forehead flap

patient's sample was again subjected for rabies antibody titre test which revealed

- Titres >0.5IU <2.5IU/ml suggesting protection against rabies.

Patient's wound was thoroughly cleaned under cover of intravenous antibiotic and antifungal medications and local alkaline intranasal douches were given to loosen the crusts.

Thus as soon as patient became immunologically protected against rabies and wound became healthy (Fig3); reconstruction of left alar and columellar defect of nose with paramedian forehead flap was carried out (Fig4). Simultaneously patient completed entire course of antirabies vaccination upto Day 90. Patient had an uneventful recovery. The dog had developed rabid features and hence was sacrificed by local authority.

Discussion

Unprovoked bite by stray, rabid dog in human leads to infection by rabies virus, if left untreated leads to disease called rabies. Incubation period of which ranges from seven days to three weeks or more.[1] Proximal the site of bite to head, face and neck shorter is the incubation period. Route of transmission is via infected saliva, rarely from licks, aerosols or transplantation of cornea or virus infected tissues. Upon infection, virus travels along the axoplasm towards brain and spinal cord (@ 3mm/hr and then further centrifugally along the nerve trunks to periphery including salivary glands where it multiplies and shed in saliva.[1] Course of disease in

humans pass through four stages: prodrome, acute encephalitic stage, coma and death.[1-3]

WHO classification of wounds depending on severity of bite helps in management. Wounds on head, face, neck are considered being the most severe due to CNS (Central Nervous System) proximity and are classified as being class3 type.[1-3] As per WHO guidelines, management for class 3 wound post rabid bite comprises of passive immunization by Human rabies immunoglobulin: Dose: 20IU/kg, half in wound, remaining intramuscular in gluteal region followed by active immunization by antirabies vaccine.

However, in this case patient had not received any passive immunization prior to receiving active immunization hence rabies antibody titre test proved to be useful to detect his immunoprotection against rabies. As per literature survey rabies antibody titre test also known as Rapid Fluorescent Focus Inhibition Test (RFFIT) is useful immunodiagnostic test recommended by WHO to test immunoprotection against rabies[3] (Fig2).

In the present case, serum sample collected after passive immunization had inadequate antibody titres (Titres<0.5IU/ml in a sample). This suggested need to administer further booster dose of antirabies vaccine. The test then repeated showed adequate antibody titres. This helped to undertake reconstruction of the defect soon after his immuno protection. Thus saved valuable treatment time without compromising the outcome.

Conclusively, role of immunodiagnostic test such as rabies antibody titre should not be underestimated in management of suspected rabid bites. Reconstruction of defect should be undertaken soon after the immunoprotection.

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Abbreviations

IU: International Unit

NIMHANS: National Institute of Mental Health and Neuro Sciences (NIMHANS), Bangalore, INDIA

WHO: World Health Organisation, Geneva

mm/hr: millimeter per hour