

Study on Incidence, Predisposing factors, Symptomatology and Treatment of Horn cancer in Bovine with special reference to Surgery and Chemotherapy

S.V.Udharwar, V.D.Aher, G.U.Yadav, A.U.Bhikane and B.P.Dandge

Department of Surgery and Radiology
College of Veterinary and Animal Science, Udgir - 413 517, Maharashtra

Abstract

A total of twelve clinical case of horn cancer were selected for the study. Incidence of horn cancer in relation to species, breed, age, sex and side of the horn were studied. Predisposing factors such as painting of horn, irritation of rope tying, exposure to actinic rays and fracture were studied. The animals were treated by amputation of horn followed by copper sulphate cauterisation in Group A and amputation of horn followed by copper sulphate cauterisation with vincristine therapy in Group B. Group B was found more effective than the Group A.

Keywords: Incidence, Predisposing factors, Symptomatology, Horn Cancer, Vincristine sulphate, Chemotherapy.

Introduction

Horn is one of the important organ of bullock which is focusing the farmers for its beautiful look. One of the serious problem of bullock is the horn cancer. It is seen in India affecting approximately one percent bullock population. Horn cancer causes heavy economic losses in India. The present study was undertaken to evaluate incidence, predisposing causes, symptomatology, and treatment of horn cancer in bovines.

Materials and Methods

A total of twelve clinical case affected with horn cancer presented to Teaching Veterinary Clinical Complex, Veterinary College, Udgir were selected for the study. The incidence in relation to species, breed, age, sex, horn involved and stage of cancer was studied. As the exact etiology of the condition is not known the predisposing factors like irritation due to tying a rope to the horn, pairing of horn for beautiful look, painting of horn, exposure to actinic rays etc. were studied. The clinical signs of the disease were also studied.

For the treatment, twelve animals were divided into two groups A and B consisting of six animals in each group. Animals of group A were treated with standard surgical technique with amputation of horn followed by cauterisation of the affected area with copper sulphate. Animal of Group B were treated with same as Group A alongwith anticancer therapy i.e. Vincristine Sulphate @ 0.025 mg/kg intravenously

thrice at the interval of seven days and efficacy of anticancer therapy was studied.

Results and Discussion

In the present study, all the affected animals were of cattle species. Among different breeds of cattle, 8 case (66.66%) were non-descript, 3 case (25%) Red Khandari and one case (8.33%) was Deoni cross. High incidence of horn cancer in non-descript animals could be due to more population of animals in and around Udgir city. Similar findings were recorded by Nimje(1983), Jahagirdar(1991) and Wangikar(1997). The average age of cattle suffering from horn cancer was 11.33 year. The highest incidence of horn cancer i.e. 7 case (58.33%) was found in animals of age group of above 10 year and 5 cases (41.66%) in animals of age group below 10 year. Whereas Kaul and Kalra(1973), Pillai,et.al.(1981) and Wangikar(1997) found highest incidence of horn cancer in age group



Fig.1. View after Copper sulphate cauterisation of cancerous growth

of 5-10 year. The high incidence might be attributed to stress in aged animals. The highest incidence of horn cancer was found in males i.e. 8 cases(66.66%) than females i.e. 4 cases(33.33%). These findings corroborates with Kulkarni (1958), Jahagirdar(1991) and Wangikar(1997). The highest incidence was with left horn i.e. 8 cases(66.66%) and incidence with the right horn was 4 cases(33.33%) whereas Lall(1953), Naik and Randelia(1978) and Jahagirdar(1991) reported equal incidence of left and right horn.



Fig.2. Complete bending of the horn - Third state of horn cancer

Combinations of predisposing factors were noticed in 10 cases, out of 10 case, in 2 case the exact mechanism of the disease remained obscure. Out of 10 cases, painting of horn and tying of rope, combinations was noticed in 7 cases. Painting of horn and tying of rope and actinic rays of sun due to white skin coat, combinations were recorded in 2 cases. Painting of horn and fracture of horn was noticed in 1 case. The exact cause of horn cancer is still obscure. The predisposing factors could contribute for the incidence of cancer. Irritation from the painting of horn, tying of rope and actinic rays of sun involves active proliferation of cells. Eventually these proliferating cells get beyond the control of the restraint exerted by the neighbouring cells and the seemingly harmless and innocent regenerative process ends up in neoplasia. Similar findings were recorded by Kulkarni(1953), Purohit and Ajinkya(1960), Jhigirdar (1991) and Saisekhar and Ramkrishna(1993).

To study the clinical signs, cases of horn cancer were divided into first, second and third depending upon the severity of horn cancer. In the animals affected with first stage of horn cancer i.e.3 cases(25%) the symptoms like striking the head against hard objects, asymmetry of horn, slight slimy blood tinged discharge from affected side nostril and base of horn was found soft, hot and painful. In second stage i.e.6 cases (50%) deviation of horn,

wound at the base of horn, foul smelling discharge from the horn, blood tinged nasal discharge of affected side, dull sound on percussion was observed. In third stage i.e.3 case(25%) complete blending of horn, breakage of horn from the base and appearing of cauliflower like cancerous growth and horn corium filled with cancerous growth was observed. Generalised signs like dullness, depression and partial loss of appetite was also evident.

In group A, five out of six case cured without complication and no recurrence was observed upto six month of observation period. While recurrence was observed in a solitary case.

Reoperation of recurred case was not undertaken due to noninterest of owner. In group B, all the cases cured without complication and none showed recurrence of the cancer upto the end of observation period of six months. The complete cure of animals in this group could be attributed to the combination of copper sulphate and vincristine sulphate therapy. The cured animals of this group regained their normal health and working capacity from 45 days onwards.

Complete cure and no recurrence of cancer could be due to action of vincristine on mitotic figures of rapidly multiplication therefore it could be stated that carcinoma i.e. squamous cell carcinoma of horn could be treated successfully with vincristine sulphate by scheduled doses. Nicholas,et.al.(2001) also reported the same.



Fig.3. Sagittal section of the horn core filled with cancerous growth

Malignant tumors grow by expansion. They also invade or infiltrate adjacent tissues by growing between cells along the tissue spaces. In a section of extension of growth below the basement membrane was adequate evidence of malignancy. Since the surrounding tissue was surreptuously infiltrated, a capsule was not formed. The extent of infiltration was important during surgery, if small amount of neoplastic cells remained, then there might be chance of recurrence.

Acknowledgement

Authors are thankful to The Dean, Dr.B.P.Dandge for providing necessary facilities.

References

1. Jahagirdar,V.D.(1991): Squamous cell carcinoma of horn with particular reference to autogenous vaccination in bovine.M.V.Sc. Thesis submitted to M.A.U.Parbhani, Maharashtra, India.
2. Kaul,P.L. and Kalra,D.S.(1973): Haryana Agri.Univ.Jou.Res. **3**:161-165.
3. Kulkarni,H.V.(1953): Ind. Vet. Jou. **29**:415-421.
4. Kulkarni,H.V.(1958): Ind. Vet. Journal. **35**:76-82.
5. Lall,H.K.(1953): Ind.Vet.Jour.**30**:205-209.
6. Nicholas,H.B. and L.E.McDonald (2001): Jones Veterinary Pharmacology and Therapeutics. **Sixth Edn.** Kaltani printings,New Delhi.pp.874.
7. Naik,S.N. and Randella,H.P.(1978): Ind. J. Cancer. **15**:28-33.
8. Nimje,D.V.(1983): Studies on horn cancer in Cattle. M.V.Sc.Thesis submitted to M.A.U., Parbhani, Maharashtra, India.
9. Pillai,A.G.R.,Katiyar,A.K. and U.K.Garg(1981): Livestock Advisor. 51-52.
10. Purohit,B.L. and S.M.Ajinkya(1961): Bombay Veterinary College Magazine.**9**:25-28.
11. Saishekar,Y. and C.Ramkrishna(1993): Veterinarian. **17(12)**:6-7.
12. Sastry,G.A.(2001): Veterinary Pathology. **7th Edn.** CBS Publisher and Distri. New Delhi. pp.205-249.
13. Wangikar,P.B.(1997): Clinicopathological studies on bovine neoplasms. M.V.Sc. Thesis submitted to MAU, Parbhani, Maharashtra.

* * * *

India comes up with action plan to combat bird flu

NEW DELHI: Having recorded two separate outbreaks of bird flu over the past two years, India has now formulated a full-fledged action plan to combat an avian influenza pandemic, when and if it comes.

According to authorities, non-pharmaceutical interventions will be vital in curtailing spread of the disease. India plans to target locations where transmission of the mutated H5N1 virus will occur. Schools and market places will be shut down and people restrained from visiting religious places or large public gatherings.

Symptomatic individuals, along with their family members, will be quarantined to combat possible chains of transmission. The department of animal husbandry has already trained 50% of its 70,000 strong veterinary population in handling poultry during such an emergency. Surveillance has already been stepped up and unusual mortality of birds is being reported weekly. Hundreds of animal samples are being sent to HSADL, Bhopal, for H5N1 testing every week. Bio Safety Level (BSL)-III labs, one each in Jalandhar, Kolkata, Bangalore, Pune and the North-East, to test animal samples for H5N1 virus are being set up. Labs are being set up to test human samples of which the ones in Delhi and Kolkata are almost ready while the third in Dibrugarh is coming up.

The National Institute of Communicable Disease's BSL-III lab has also started functioning. Over 12,000 doctors have been trained to recognize symptoms. The health ministry will also conduct tabletop exercises, simulations and mock drills in the country from next month. Officials said: "We have learnt that training doctors once is not enough. In the district, the posting of doctors changes frequently. We have already conducted six workshops in all four zones. During the Manipur outbreak, we flew doctors from all seven north-eastern states to give them hands on experience."

The ministry has stockpiled 10 lakh courses of Tamiflu with a shelf life of five years. WHO has also stockpiled Tamiflu and has three million courses. These will be used specifically for rapid containment at the beginning of a pandemic. In addition, the animal husbandry department has tied up with a company dealing in animal health products to bank 40 million doses of poultry vaccine which will be picked up only if the country ever decides to vaccinate its poultry. Estimates predict that around 20% of the total world population will fall ill during the next influenza pandemic and 28 million may need hospital care. kounteya.sinha@timesgroup.com