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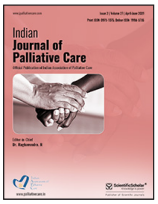

Case Report

Fatal Tetanus in a Patient with Carcinoma of the Breast – A Case Report

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ABSTRACT

Tetanus in patients with malignant wounds can be fatal. We report a case of a patient with carcinoma of the breast, with a malignant wound. She had applied native medication and approached us for pain management. She developed typical features of tetanus which despite prompt detection and management by the palliative care team, turned fatal. We further discuss the need to keep the possibility of the diagnosis in mind, educate the caregivers to be aware of the possibility of a toxic infection like tetanus that can occur in patients with open wounds, ascertain the immunisation status if possible and conclude by reiterating the conclusions of other authors that prophylactic tetanus immunisation for those with malignant wounds could be effective in reducing the resultant morbidity-mortality.

Keywords: Tetanus immunisation, Malignant wounds, Tetanus immunisation in malignant wounds

INTRODUCTION

Tetanus is a life threatening but potentially reversible disease caused by infection of the widely distributed *Clostridium tetani* and its spores present in the environment. Elimination of tetanus is possible through effective immunisation. The global incidence of tetanus has declined due to universal immunisation programs and improved wound care. As per the World Health Organization, 16 countries still reported maternal and neonatal tetanus as of 2017. The incidence of tetanus in India has declined from 45,948 cases in 1980 to 7071 in 2019.[1] The actual incidence, however, may be higher because of errors in diagnosis and underreporting. Toh *et al*. reported tetanus due to infected ulcerative breast cancer lesion in 1997.[2]

Malignant wounds are non-healing and susceptible to infection – hence, they can be a portal of entry for anaerobic bacteria like *C. tetani* and/or aerobic bacteria such as *Proteus* and *Klebsiella*.[3] We report a case of tetanus developing in a patient with an infected malignant wound of carcinoma breast.

CASE REPORT

Mrs. K, 45 years, had a 3-month history of a painful lump in her left breast. She reported increased pain after its breakdown caused bloody purulent discharge. Examination revealed that the wound was covered with a leaf of a plant under which was an application of a native medicinal paste. On cleaning the wound, an ulcerated mass with two discharging sinuses was noted in the inner, lower quadrant of the left breast [Figure 1]. There were multiple, large, firm lymph nodes of variable size of 1–3 cm in the left axilla.

Investigations revealed polymorphonuclear leucocytosis, metastatic lesions in both lungs (as assessed with chest X-ray) and hepatic lesions (as assessed with ultrasonography). Post-admission, pain was controlled with oral morphine and paracetamol. Administration of oral amoxicillin-clavulanic acid and regular cleaning with normal saline, debridement of necrotic tissue and dressing of the wounds with 2–3 crushed metronidazole tablets (400 mg) were instituted.

On day 4, the patient became agitated and restless; developed severe lower back pain and gross tremors. She had fever with tachycardia. Administration of oral antibiotics was changed to parenteral route, and intravenous metronidazole was added as sepsis was suspected. Blood investigations revealed persistent leucocytosis and elevated C-reactive protein. Within 12 h, she developed trismus, intermittent spasms in the extremities and mild opisthotonos. All deep tendon reflexes were hyperactive.

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A clinical diagnosis of tetanus was made. Over the next 4 h, she rapidly progressed to complete lock jaw, severe opisthotonos and respiratory distress. She was transferred to intensive care unit (ICU) where intravenous diazepam infusion and mechanical ventilation after tracheal intubation were instituted. Anti-tetanus immunoglobulin could not be given due to financial issues. Subsequently, the patient developed severe autonomic disturbances and died within the next 24 h.

DISCUSSION

Immunisation against tetanus has dramatically decreased its incidence (especially, neonatal and maternal tetanus), so much so that the probability of missing its diagnosis has increased. A report from India on incidence of tetanus due to various causes did not report any case of tetanus in patients with cancer.[4] Reports of its occurrence in malignant wounds are sporadic and in the form of case reports only.[2,5,6]

In a resource-poor country like India, rural residency, illiteracy, poverty, lack of access to healthcare, lack of awareness about immunisation and reliance on native remedies – all contribute to overall morbidity and mortality due to various diseases including tetanus.

In light of this case, we did an informal survey among 25 doctors in our hospital – none had been immunised for tetanus as per the guidelines for adult immunisation – reflecting ignorance even among medical professionals.[7] It is highly unlikely that patients with malignancies, with a potential to ulcerate, are routinely screened for immunisation status for tetanus. Hence, a high index of suspicion is needed to diagnose tetanus, especially in those patients with open contaminated wounds and devitalised tissue with/without foreign bodies as they foster anaerobic environment and facilitate infection with *C. tetani*.[8]

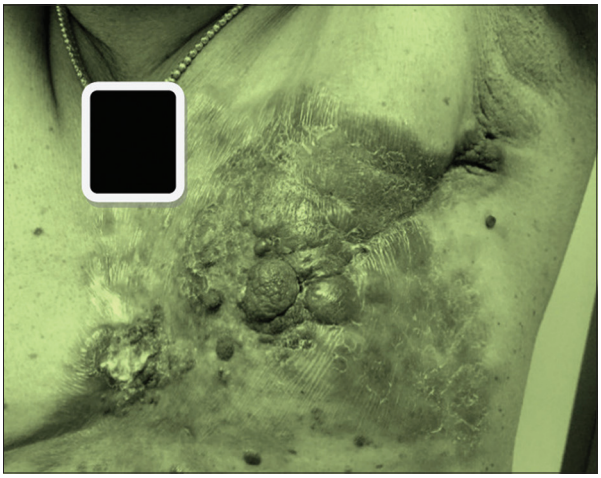

Figure 1: Image showing malignant wound of the left breast with two discharging sinuses in the lower inner quadrant. (Patient's consent has been taken for the photograph and using it for academic purpose).

The estimated incidence of malignant wounds is 5–10%, with more than 50% being due to breast cancer.[9] Most cases of tetanus in malignant wounds reported in literature are from Asia. Although anecdotal, this may reflect local factors, especially related to native remedies used in wound care, as was the case with our patient. Toh *et al*. who published the first case of tetanus in breast cancer failed to detect any report of tetanus in malignant wounds in their 30-year retrospective review of literature.

Our patient is probably the first reported case of tetanus developing in a malignant wound of carcinoma of breast, from our country. She had no obvious signs of tetanus at the time of admission. However, the development of systemic features and rapid deterioration of the neuromuscular manifestations in the background of an open, contaminated wound made us think of the possibility of tetanus. Her tetanus severity score, a prognosticating tool of tetanus, was nine. This score reflected good 'predicted survival.'[10] However, despite its quick detection, rapid transfer to the ICU and institution of appropriate management, she died within 24 h. As the clinical suspicion was high and the finances were low, the management was palliative in intent and, therefore, not many investigations were asked for, immediately. Cultures of wound swabs hardly grow the organisms and the serological tests lack unequivocal sensitivity or specificity.[11] Her recovery may have been hindered by other factors such as pulmonary metastasis, malignancy associated immunosuppression, untreated cancer wound, non-immunised status and inability to afford tetanus immunoglobulin.

Many patients tend to neglect wounds in the breasts and/or genitalia due to a sense of shame. Lack of access to health care, low economic and literacy status further contribute to neglect. Such patients get relegated to home care, suffer more and lose contact with health-care systems – a common scenario in our country.

It has been shown that regional metastatic lymph nodes in breast cancer patients are incapable of mounting a protective immunologic response.[12] It is, however, not clear if this impacts the clearance of infection in malignant wounds. Protective levels of antibodies in response to tetanus toxoid have been reported in patients with malignant diseases despite the presence of immunosuppression.[13]

At present, there are no clear guidelines for vaccination against tetanus in patients with cancer. There is, however, an increasing emphasis on immunisation of cancer patients, especially those with haematological malignancies. Likewise, patients with malignant wounds seen in relation to solid tumours, which are prone to infection, should be considered as candidates for active immunisation. Tetanus vaccine is safe, affordable and could have a favourable impact in immunocompromised

patients in countering both fatality and complications due to tetanus infection.[11]

CONCLUSION

We have reported a fatal case of tetanus in a patient with an infected breast cancer wound. Malignant wounds can get infected with *C. tetani* which increases the risk of morbidity and mortality. Although palliation plays an important role in patients with malignant wounds, it is still important to prevent tetanus to avoid further suffering, mortality and the additional cost of treatment by a simple measure like active immunisation with tetanus toxoid. This case also highlights the need to educate the caregivers to be aware of the possibility of a toxic infection like tetanus occurring in patients with open wounds.

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Declaration of patient consent

Patient's consent not required as there are no patients in this study.

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Conflicts of interest

There are no conflicts of interest.

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