

Surgical removal of cutaneous myxoma in crossbred Jersey cow

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Abstract

A seven-year-old, non-pregnant crossbred Jersey cow weighing approximately 280 kg was reported with progressively increasing pedunculated mass on the ventrolateral aspect of the right abdomen for 4 months which caused discomfort in lying down. On clinical examination, the mass was ulcerated, infested with maggots, and a foul smelling discharge mixed with blood was observed. The animal was sedated with inj. xylazine @ 0.1 mg/kg body weight I/V and local anaesthetic inj. 2% lignocaine HCl was infiltrated subcutaneously around the mass. The skin was incised, subcutaneous tissue was separated, and the blood vessels were ligated. The tumour mass was excised by thermocautery. The muscle and skin were sutured by standard surgical procedure. Autologous platelet rich plasma prepared from the whole blood of the animal was injected subcutaneously at the surgical site. The tumour mass was lobulated, weighing 5.7 kg, measuring 32 cm in length and 24 cm in width, with foul odour, ulcerated and maggots were noticed. On histopathological examination of the mass, it was revealed as myxoma. There was no infiltration of the tumour with surrounding tissues. Post-operatively, inj. fortified procaine penicillin @ 10,000 IU/kg b.wt I/M for 5 days, inj. chlorpheniramine maleate @ 0.2 mg/kg I/M for 5 days, inj. meloxicam @ 0.2 mg/kg b.wt I/M for 3 days were administered, and fly repellent spray was advised for external use. Suture was removed on the 10th day, and the animal made an uneventful recovery without recurrence.

Keywords: Autologous platelet rich plasma, Cow, Mass, Myxoma

Highlights

- Myxoma is a tumour of fibroblastic origin distinguished by its abundant myxoid matrix rich in mucopolysaccharides and tumour of primitive connective tissue.
- Myxoma is reported in various regions in cattle with more common in cutaneous tissue.
- Autologous platelet rich plasma shows enhanced wound healing with less scar formation in large wounds.
- No recurrence is noticed in this case.

Tumours of mesenchymal origin like fibroma, fibrosarcoma, hemangioma, hemangiosarcoma, lymphoma and myxoma affect the dermal and the subcutaneous level of the skin (Hendrick *et al.*, 1998). Myxoma and myxosarcoma are tumours of fibroblastic origin, which are distinguished by abundant mucopolysaccharides in myxoid rich matrix (Hendrick, 2016). Myxoma is a tumour of primitive connective tissue. It has been reported at various sites in farm animals, including a case of interdigital myxoma in a Haryana cow (Misra *et al.*, 1981), odontogenic myxoma of the mandible in a filly (Chandra *et al.*, 1999), congenital cutaneous myxoma in cattle (Yeruham and Perl, 2001), myxoma present on limb in two cattle (Yeruham and Perl, 2002), myxoma of rectum in a buffalo (Mosbah and Naggat, 2012), myxoma in the nasal cavity of a Holstein crossbred cow (Singh *et al.*, 2016) and fibromyxoma in the reticulo-omasal orifice of a cow (Movassaghi *et al.*, 2013). Platelets on wounds are found

to modulate the inflammation and proliferation phases of wound healing and reduce the risk of keloid and hypertrophic scar formation. Large skin wounds showed enhanced healing with autologous platelet rich plasma (Iacopetti *et al.*, 2012). In the present case, successful management of myxoma in a cow with application of autologous platelet rich plasma for enhanced wound healing is reported.

A seven-year-old non-pregnant crossbred Jersey cow weighing approximately 280 kg was presented to the Department of Veterinary Surgery and Radiology, VCC, RIVER, Puducherry, with a history of progressively increasing pedunculated mass at the right ventrolateral abdomen region for 4 months (Fig. 1). The tumour initially started as a wart like growth with increasing in size which caused discomfort while lying down. On clinical examination, the mass was soft on palpation, ulcerated with the presence of live maggots and a foul-smelling discharge mixed with blood was observed.

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Physiological and hematological parameters (Table 1) were within normal range, and the animal was prepared

Table 1. Normal hematological values

Parameters	Values
RBC	$5.1 \times 10^6/\text{Cu.mm}$
WBC	$4.9 \times 10^3/\text{Cu.mm}$
Neutrophils %	41%
Eosinophils %	5%
Basophils %	0%
Lymphocytes %	51%
Monocytes %	3%
Haemoglobin	8.9 g/dL
Platelet count	$782 \times 10^3/\text{Cu.mm}$
PCV	36%
MCV	42.0 fl
MCH	12.9 pg/mL
MCHC	31.3 g/dL

for surgery under aseptic conditions.

Following preoperative evaluation, food and water were withheld for 24 hours prior to surgery. The animal was placed in lateral recumbency and sedated with inj. xylazine @ 0.1 mg/kg body weight intravenously and local infiltration performed with inj. 2% lignocaine HCl around the mass subcutaneously. An elliptical incision was made on the skin at the pedicle using electrocautery, blunt dissection was performed, and vascularization of the mass was ligated using chromic catgut size 2. Attachments of the mass were separated using blunt scissors, no infiltration of the mass with surrounding tissue was noticed, and the mass was completely resected by electrocautery. The subcutaneous tissue was sutured using Polyglactin 910 size 1, and the skin was opposed with braided silk size 1. The autologous platelet rich plasma was prepared from 10 mL whole blood collected in EDTA from the same animal and was centrifuged at 3000 rpm for 5 minutes. 4 mL of autologous platelet plasma obtained from the centrifuge was injected subcutaneously at the surgical site, and the suture site was protected with gauze impregnated with povidone iodine.

The excised mass was multilobular, weighing around 5.7 kg, measuring 32 cm in length and 24 cm in width (Fig. 2) with foul odour, ulcerated, and maggots were noticed. On histopathological examination, it was identified as myxoma. Spindle/stellate-shaped cells with hyperchromatic nuclei in abundant myxoid stroma were noticed with Hematoxylin and Eosin stain under a simple microscope at 10X magnification and 40X magnification (Fig. 3).

Post-operatively, inj. fortified procaine penicillin @ 10,000 IU/kg b.wt I/M for 5 days, inj. chlorpheniramine

maleate @ 0.2 mg/kg b.wt I/M for 5 days, inj. meloxicam @ 0.2 mg/kg b.wt I/M for 3 days were administered. Sutures were removed on the 10th day after the operation. The cow recovered uneventfully, and the case was followed up to 1 year where no recurrence was noticed (Fig. 4).

In the present case, the excised mass was multilobular in nature, and it was excised surgically where no recurrence of the tumour mass was observed till 1 year post-operatively. In myxoma, the tumour cells are arranged in concentric whorls or palisades and are multilobular in nature (Gross *et al.*, 2005). Bovine fibropapilloma is typically characterised by a dermal proliferation of large, plump fibroblasts haphazardly arranged in whorls and fascicles. Exuberant granulation tissue, which is the result of a reparative process characterised by neovascularisation and proliferation of fibroblasts within a proteoglycan rich matrix was also excluded since the mass was only superficially ulcerated, and cutaneous ulceration occurred later as a consequence of progressive growth of the mass and superficial trauma (Mauldin and Peters-Kennedy, 2016).

Platelet rich plasma (PRP) application is an easily accessible cell therapy involving many bioactive factors, and therapeutic application may be achieved by simple techniques. In this study, PRP was injected intralesionally (Smith *et al.*, 2007). Cutaneous wound healing indicates repair and regeneration of tissue, which is mediated by growth factors that regulate cell migration, proliferation, differentiation, production of proteins, enzymes, extracellular matrix, and remodelling (Singer, 1999).

Angiomyxoma was reported as a slow growing tumour, but an increase in growth rate was observed during pregnancy in humans (Zangmo *et al.*, 2016), which could be related to a hormone dependency (Orfanelli *et al.*, 2016).

Conflict of interest: Authors have no conflict of interest in this study.

Author's contributions: MA: Conceptualization, methodology, investigation and writing of the original draft; NG, KS: Methodology and critically revising the manuscript; AM, NV, AJN: Critically revising the manuscript.

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Fig. 1. Pedunculated mass



Fig. 2. Excised multilobular mass

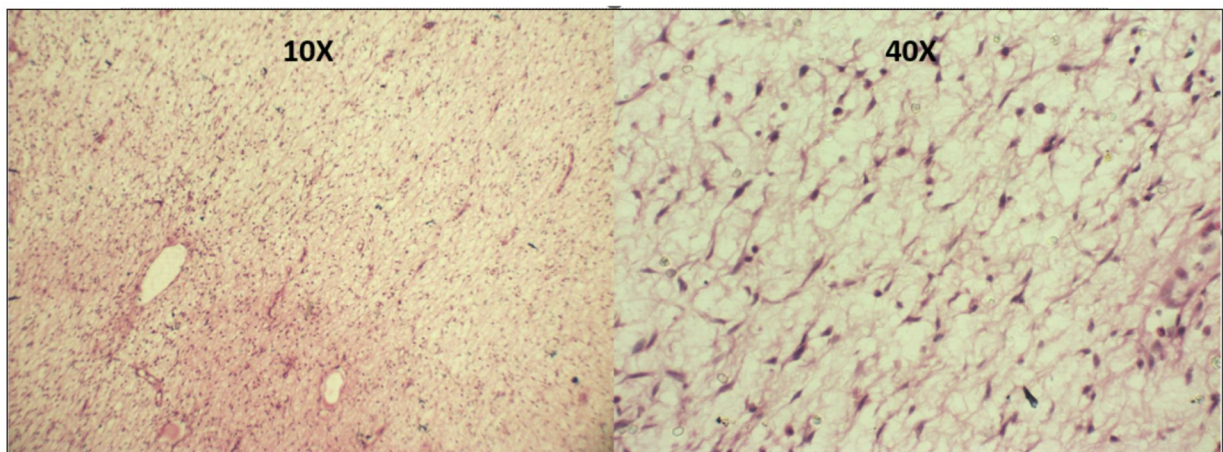


Fig. 3. Spindle/stellate shaped cells with hyperchromatic nuclei in 10X and 40X (H&E staining)



Fig. 4. Postoperative wound healing observed

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