POST SURGICAL COMPLICATIONS FACED BY STUDENTS DURING LARGE ANIMAL SURGERY

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ABSTRACT

One hundred and fifty three surgical complications were recorded in retrospective study of operations carried out in the students large animal surgical laboratories in the department of clinical sciences, Gomal College of Veterinary Sciences, Gomal University D.I. Khan, Pakistan during the years 2003 to 2006. Wound infection (22.5%), wound dehiscence (20 %), hemorrhage (15%) and septicemia (15%) were the commonest complications observed. Other complications included, slipped ligature, intestinal obstruction, edema, myasis and death. Castration, opening of gutteral pouch, entrotomy and dehorning resulted in higher number of complications. Interviews from students conducted through questionnaires revealed that the animals with poor nutritional and health status, poor use of surgical instruments and septic surgical procedures were some of the factors that led to high incidence of complications. Management of complications entailed the use of systemic antibiotic treatment of surgical site as an open wound. Recommendations are made to avert occurrence of post surgical complications during the surgical practices adapted by students in large animal surgery.

Key words: Surgical complications, student practical, donkey, goat.

INTRODUCTION

The cost of running large animal surgical unit in the department of veterinary clinical sciences (surgery section), Gomal College of Veterinary Sciences Gomal University D.I. Khan is estimated to be Rs. 30,000 per annum which is an expensive venture. A major factor contributing to this, apart from the cost of animals and surgical material, is cost of managing post-surgical complications. Despite the many difficulties involved, this experimental surgery is essential because surgery is the major course in the undergraduate veterinary curriculum.

Experience, repetition and practice under a variety of circumstances are essential for the students who encounter difficult phases of experimental surgery on animals may give good experiences in surgery after graduation. The purpose of study is to highlight surgical compilations faced by students during large animal surgery practical and the probable causes with the view of minimizing them.

Records of 4 years large animal surgical complications and their management in donkey and goat by the veterinary students in the department of clinical sciences (surgery section), Gomal College of Veterinary sciences. Gomal University, D.I. Khan, Pakistan from 2003 to 2006 were studied. The surgical procedures included castration, opening of guttural pouch, entrotomy, dehorning, tracheotomy, laparotomy, vasectomy, oesophaogotomy and tail docking.

The students were divided in-groups consisting of 7-10 students and each group performed the experimental surgery in prearranged schedule. A questionnaire was prepared and copies were provided to the students. The questionnaire consisted of information on the personal data of the students, different parameters for pre surgical evaluation of donkeys and goats, post surgical complications observed, the causes and management. A total of 153 surgical procedures were conducted on donkey and goat between 2003-2006 (Table-II). Number of students per surgical group ranged between 7-10 (Table-I). Two hundred surgical complications were recorded from 2003-2006 (Table-III). Wound infection (22.5 %), wound dehisence (20 %) hemorrhage (15 %) and septicemia (fever) (15 %) were the commonest complications observed. Castration, opening of guttural pouch, enterotomy and dehorning resulted in higher number of complications. (Table-IV).

Wound dehisence and infection were often managed by debribment and levage with isotonic solution and in some cases with addition of povidon-iodine solution. Bandages were some time applied to protect the wound from heavy contamination and rubbing the wound by animal. Cases of edema were managed by the administration of diuretics such as furosemide (lasix). The respondents were of the opinion that complications were due to poor nutritional status of animals, septic

surgical techniques, poor use of surgical instruments, poor operating room conduct.

Table I. Number of students per Animal for large Animal Surgery from 2003-2006.

Year	Total no of Students	Average no of Students Per Animal	No Of Surgical Groups
2003	48	10	05
2004	35	07	05
2005	18	09	02
2006	35	07	05

Table II. Types and number of Surgical Procedure Performed on Donkeys /Goats by the students from 2003-2006.

Surgical Procedure	Number of Operations Performed Per Year				
	2003	**2004**	**2005**	**2006**	**Total**
Castration	05	05	02	05	17
Opening of Guttural pouch	05	05	02	05	17
Entrotomy	05	05	02	05	17
Dehorning	05	05	02	05	17
Tracheotomy	05	05	02	05	17
Lapratomy	05	05	02	05	17
Vasectomy	05	05	02	05	17
Oesophagotomy	05	05	02	05	17
Tail Docking	05	05	02	05	17
Total	**45**	**45**	**18**	**50**	**153**

Table III. Number of Post Surgical Complications Observed in Donkeys/Goats from 2003-2006.

Post Surgical Complications	Nos.	Percentage of Occurrence
Wound Infection	45	22.5 %
Wound Dehisence	40	20.0 %
Hemorrhage	30	15.0 %
Septicemia (fever)	30	15.0 %
Slipped Ligature	20	10.0 %
Intestinal Obstruction	13	6.5 %
Edema	10	5.0 %
Myasis	08	4.0 %
Death	04	2.0 %
Total	**200**	**100 %**

The high incidence of wound infection observed in this study may be attributed to septic procedure during surgery or from dirty animal post surgery (Lee *et al*, 1988, Swaim 1990). *Staphylococcus* and *streptococcus* organisms were the main isolates from cases of wound infection as observed in Zeitter (1967). Owen and Sarah (1978) reported that good surgical technique and observance of high standard asepsis are important components of a successful surgery with little or no complications.

Table IV. Number of Post Surgical complications observed in procedures on Donkeys/ Goats by students 2003-2006.

Surgical Procedures	No of Opera-tions	Total no of Comp-lication	%age Occu-rrence
Castration	17	45	22.5 %
Opening of Guttural Pouch	17	35	17.5 %
Entrotomy	17	35	17.5 %
Dehorning	17	30	15 %
Laprotomy	17	15	7.5 %
Tracheotomy	17	15	7.5 %
Vasectomy	17	11	5.5 %
Oesophagotomy	17	10	5 %
Tail Docking	17	04	2 %
Total	**153**	**200**	**100 %**

Contamination is a principal factor in the transfer of infection to surgical site. In this study the source of contamination was due to failure of students to notify supervisors when asepsis was broken during surgery, poor operating room conduct and dirty pens where animal were housed post surgically. Incidence of wound dehiscence observed in this study could be attributed to improper closure of surgical wounds. Unnecessary trauma of tissues such as wrong application of instruments for tissues excision during surgery and poor nutritional and health status of experimental animals consequently interfere with the wound healing as also observed by Aadeyanju *et al*. (1992). Hemorrhage could be ascribed to rupture of blood vesscles, and inadequate ligation of potential bleeders as observed by Misk and Hifny (1978). The edema observed in this study maybe due to poor drainage of surgical site and failure to exercise the animal post surgically as observed by Boyd and Briton (1972).

Surgical misjudgment included the use of wrong suture material, failure to provide adequate drainage, inadequate preoperative preparation and closure of wound under excessive tension. Students surgeons are some time caught moving from one surgical group to other to get surgical instruments. Inadequate haemostasis and sepsis are the causes of post surgical hemorrhage in student's experimental surgery. Complication observed with castration and opening of guttural pouch may be due to sitting and rubbing the operation sites. The irrigation of septic surgical wounds with antiseptics such as chlorhexidine and povidone iodine has been beneficial as reported by Amber *et al*. (1983). However, preoperative administration of antibiotics may give protection against

colonization of microbes, intra operative administration will ensure adequate tissue levels, through out critical period while post operative antibiotic therapy will prevent post surgical sepsis (Furneanx *et al.,* 1977).

Conclusion: Conducting students experimental surgery is expensive, however, this cost can be reduced by minimizing the added cost of managing post surgical complications, close super-vision of the students and getting them acquainted with post surgical complications, their causes and measures to prevent occurrence.

Recommendations: Healthy animals must be obtained for student's experimental surgery and must be provided with adequate nutritious food; Ensure daily cleaning and disinfecting of animal pens; Ensure that students review surgical procedures and instrumentation prior to surgery. This could be affected by administrating a pre surgical quiz; Strict supervision of students to ensure aseptic adequate technique, correct use of instruments, sutures and suture pattern/knots; Maintain ratio of 4-5 students per animal; Provide complete surgical package for each surgical group.

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