

POST SURGICAL COMPLICATIONS FROM STUDENTS' LARGE ANIMAL SURGICAL EXERCISE

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SUMMARY

A retrospective study of post surgical complications was conducted on records of students' Large Animal Surgical Laboratories in the Faculty of Veterinary Medicine (F.V.M.), Ahmadu Bello University (A.B.U), Zaria from 1989 to 1993. Three hundred and eleven surgical complications were recorded from five surgical procedures namely dehorning, orchidectomy, vasectomy, rumenotomy and enterotomy. The commonest complications were wound dehiscence (25.4%), sinusitis (16.7%), and hemorrhage (14.6%). Others included fever (11.3%), edema (10.6%) slipped ligature (6.4%), wound infection (5.5%), peritonitis (4.8%), death (2.6%), intestinal obstruction/adhesion (1.3%), physiological bloat (0.6%) and myiasis (0.3%). Dehorning, castration and rumenotomy resulted in more complications. Surgical site debridement and surgical reconstruction coupled with antibiotic therapy were used in the management of complications. Responses from questionnaires administered to instructors of the surgical laboratories, revealed that post surgical complications were due to poor health status of sheep and goats used, broken asepsis during surgery, wrong use of instrument, poor surgical technique and dirty pens in which they were kept after surgery. Surgical complications no doubt contribute to tremendous high cost of running the students' surgical laboratories which was estimated to cost ₦80,000 per annum. In order to minimize these complications and consequently to reduce money spent on surgical reconstruction and antibiotic therapy some recommendations are made.

KEY WORDS: Surgical complications, students' practical, sheep and goats

INTRODUCTION

Complication is a disease or an unfavorable condition, which comes along with or is the result of another disease (Hofmayer, 1974). John, (1979) defined complication as an accidental condition or second disease process arising during the course of or following surgical management of a primary condition.

Today, most veterinary surgeries are procedures in which the risk to the patients can be accurately assessed, nevertheless any surgery is a very serious undertaking and even with every care there are unpredictable hazards or complications (Roaf and Hodkinson, 1978). The most important implication of a surgical procedure is the added cost of managing the complication. It also results in prolonged convalescence, physical stress to the patient and reduced

productivity from morbidity and mortality. The aim of this study was to determine the surgical complications arising from students' large animal practice surgery and the probable causes with the view of minimizing them.

MATERIALS AND METHODS

Record of 5th year students' large animal surgical exercise in the Department of Veterinary Medicine, F.V.M., A.B.U, Zaria from 1989 to 1993 were studied.

Copies of questionnaire consisting of ten items were distributed to the six supervisors of the students' large animal surgical exercise. The first part of the questionnaire requested the respondent's

personal data such as rank, sex and teaching experience in large animal surgery. The second part was a group of questions to assess students' care towards their experimental animals, operating room conduct, ratio of students to sheep/goat, the nutritional/health status of the animals used, post surgical complications observed from various procedures, the causes and how they were managed.

RESULTS

A total of 220 surgical procedures were conducted on sheep and goats between 1989 and 1993 (Table I). Number of students per surgical group ranged between 6 and 10 (Table II).

TABLE I: Ratio of 5th year students to animal for large animal surgical exercise at Faculty of Veterinary Medicine, Ahmadu Bello University, Zaria from 1989-1993

Year	Total number of 5 th Year students	Average number of students per animal	Number of surgical groups
1989	79	10	8
1990	66	7	9
1991	82	6	13
1992	83	6	13
1993	52	7	7

TABLE II: Type of surgical procedure performed on sheep/goat by 5th Year Students a Faculty of Veterinary Medicine, Ahmadu Bello University, Zaria from 1989-1993

Surgical procedure	Number of procedures performed/year					Total
	1989	1990	1991	1992	1993	
Dehorning	8	7	13	13	7	48
Orchidectomy	8	7	13	13	7	48
Rumenotomy	8	7	13	13	7	48
Enterotomy	7	7	9	11	5	39
Vasectomy	7	5	9	11	5	37
Total	38	33	57	61	31	220

Three hundred and eleven surgical complications were recorded from five surgical procedures namely dehorning

(28.9%), orchidectomy (23.2%), rumenotomy (21.9%), enterotomy (20.9%) and vasectomy (5.1%) (Table

III). The commonest complications were wound dehiscence (25.4%), sinusitis (16.7%) and hemorrhage (14.5%). Others are fever (11.3%), edema (10.6%), slipped ligature 6.4%), wound infection (5.5%), peritonitis (4.8%) and death (2.6%) (Table IV). Respondents to

questionnaires also observed wound dehiscence, infection, hemorrhage, shock and peritonitis as common surgical complications. Wound dehiscence was found to occur 3-5 days post surgery especially where continuous suture pattern was applied.

TABLE III: Number of post surgical complications observed in procedures performed on sheep and goats by 5th Year Students at Faculty of Veterinary Medicine, Ahmadu Bello University, Zaria from 1989-1993

Surgical procedure	Number of operation	Total number of complications	Percentage occurrence
Dehorning	48	90	28.9
Orchidectomy	48	72	23.2
Rumenotomy	48	68	21.9
Enterotomy	39	65	20.9
Vasectomy	37	16	5.1
Total	220	311	100

TABLE IV: Post surgical complications observed from surgical exercises on sheep/goats by 5th Year Students at Faculty of Veterinary Medicine, Ahmadu Bello University, Zaria from 1989-1993

Surgical complications	Total number of occurrence	Percentage occurrence
Wound dehiscence	79	25.4
Sinusitis	52	16.7
Hemorrhage	45	14.5
Septicemia (fever)	35	11.3
Edema	33	10.6
Slipped ligature	20	6.4
Wound infection	17	5.5
Peritonitis	15	4.8
Death	8	2.6
Intestinal obstruction/adhesion	4	1.3
Physiological bloat	2	0.6
Myiasis (<i>Oestrus ovis</i>)	1	0.3
Total	311	100

Factors incriminated by respondents as causes of the complications are; seldom cleaned and disinfected animal pens, over crowding at surgical table (6-10 students), septic surgical technique, rough handling of tissues during surgery, wrong application of suture patterns, use of animals with poor nutritional status, late report of complication by students to supervisors.

Methods employed in the treatment of post surgical complications were topical and systemic antibiotic therapy, debridement and reconstructive surgery and fluid therapy. It was observed that supervisors responding to questionnaires were very experienced. There were 4(66.7%) respondents from the rank of professor to senior lecturer with over 12 years of experience and 2(33.3%) respondents were lecturer 11 and assistant lecturer with 3-8 years of experience. Only one of the respondents is female.

DISCUSSION AND CONCLUSION

Animals with poor nutritional and health status used for the surgical exercise are a significant cause of the observed complications. This is because good nutrition is essential for the production of antibody against infection and adequate energy for maintenance of metabolic processes (Gyang, 1988; Harper *et al.*, 1979), thus any underlying disease or presence of remote active infection in any part of the body would slow down the rate of surgical wound healing, and also lead to serious complication (Walker, 1966).

Owen and Sarah (1978) also observed that good surgical technique and

observance of high standard of asepsis, are important components of a successful surgery with little or no complication, this is because contamination is a principal factor in the transfer of infection to surgical site. In this study the major source of contamination is probably from overcrowding of students around the surgical table, poor operating room conduct and spillage of gastrointestinal content into the peritoneum during surgery and from dirty pens where animals are housed post surgically. These result in complications such as peritonitis, sinusitis, septicemia, wound infection and adhesions.

Wound dehiscence can be attributed to inadequate application of suture, tension on the tissue, failure to obliterate surgical dead space and wound infection as observed by Malt (1974). Poor surgical technique and post operative infection were the causes of sinusitis as observed by Heinze (1972) and Weaver (1986). Hemorrhage could be ascribed to rupture of blood vessels, and inadequate ligation of potential bleeders as observed by Misk and Hifny (1978). The edema observed in this study may be due to poor drainage of surgical site and failure to exercise animal post surgically as observed by Boyd and Briton (1972).

Minor injury to the peritoneum leading to transient fibrinous adhesion which is resolved within a few days were of no significant effect on the animals, but where there has been extensive damage it resulted in peritonitis and formation of adhesions as reported by Fox (1970). Death of animals in this study were often due to shock, acute peritonitis, intestinal obstruction, internal hemorrhage and

sometimes idiopathic causes, which is in agreement with the observation of Hickman and Robert (1983).

It must however be noted that it is relatively easy to identify post surgical complications but it may be difficult to categorize them based on etiology because of the similarity of symptoms found in the various complications. Another factor is that information about surgical complications is sometimes difficult to acquire by means other than personal experience and many surgeons are reluctant to draw attention to failures, and unless errors involved are known they are likely to be repeated (Vaughan *et al.*, 1974).

Complications were more frequent with dehorning, this is probably due to the fact that this procedure is usually the first surgical procedure and students are nervous and afraid of surgery. The other factor is failure to obliterate the dead space, contamination from dirty pens and flies.

This study has highlighted the common surgical complications resulting from students' large animal surgical exercise and the possible causes of such complications so that precaution can be taken to forestall future occurrences.

RECOMMENDATIONS

1. Healthy/goats must be obtained for students' practical surgery and animals must be provided with adequate and nutritious food.
2. Ensure daily cleaning and disinfection of animal pens and use of fly repellants.

3. Ensure that students review surgical procedure and instrumentation prior to surgery. This could be effected by making students take a pre surgical written quiz.
4. Maintain a ratio of 4-5 students per animal.
5. Ensure adequate number of supervisors for each practical class.

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