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THE GOA VETERINARY ASSOCIATION

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NEW EXECUTIVE COMMITTEE

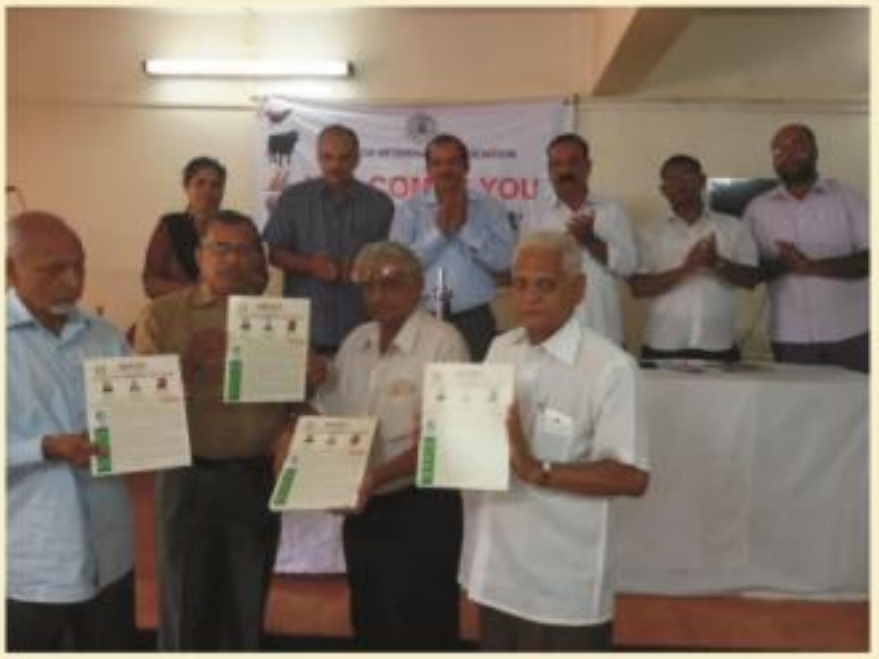
Bottom row from left to right Dr.Prabhugaonkar (Internal auditor), Dr.Misquita (Gen. Sec.), Dr.Dhuri (President), Dr.Bale (Vice President & Bulletin Editor), Dr. Rajesh Keni (Jt.Sec.) Dr.Anuradha (Treasurer)

Top row from left to right Dr.Tushar Gauneker (Webmaster), Dr.Satyavan Naik, Dr.Narendra Naik, Dr.Rama Parab, Dr.Gayatridas Gauthankar (all members)

General Body Meeting

Dr.Faleiro being felicitated at the hands of Dr. Khandeparkar on retirement

Dr.Uday Pednekar being felicitated at the hands of Dr.H.N.Singh on assuming charge as Managing Director of Goa Meat Complex



Bulletin release at the hands of senior vets Dr.H.N.Singh, Dr.Khandeparkar, Dr.Bakhale, Also seen Dr.Bale Bulletin Editor & other members

ARTIFICIAL INSEMINATION IN DAIRY ANIMALS: PRECAUTIONS AT FIELD LEVEL

India possesses largest cattle and buffaloes population in the world i.e. 190 million and 108 million respectively. There is a lot of scope to improve milk production of country by upgrading of genetic make up by cross breeding of non descript dam using semen from exotic /proven sires through artificial insemination (AI) technique. The main advantage of AI is that, the maximum utilization of best sire can be achieved as 800 to 1000 cows can be inseminated from a single ejaculate of a bull. Control of various venereal diseases is possible. AI method is cheap and easy as there is no rearing of breeding bull etc. The success rate of AI in India is very low i.e. about 20—30 % only. This low conception rate in many cases is attributed to improper handling of semen as well as poor insemination technique at the time of insemination.

Steps along with precautions involved in proper handling of semen starting from the liquid nitrogen container to deposition in female reproductive tract are as follows:

- For best fertility rate, cattle should be inseminated during mid to last half of standing heat and buffaloes should be inseminated in late heat. The AM-PM rule has been developed as a guide for cattle. Cows first seen in standing heat in the morning (AM) should be inseminated in afternoon (PM) and those observed standing in the evening should be bred next morning. In buffaloes, AM PM rule cannot be straight forwardly applied as they suffer with silent heat and heat detection is not so much easy. In buffaloes, golden rule is that she should be inseminated

whenever observed in heat and should be re-inseminated after 10—12 hours (Double AI).

- All animals that came for AI should be given rest for 10—15 minutes before performing AI. This is because animals get excited while coming to hospitals due to dragging, beating, etc. Excitation causes release of epinephrine which can interferes with sperm transport.
- Handling of semen right from the storage containers to loading of the gun should be done by qualified veterinarian / trained persons. Frozen semen is stored in liquid nitrogen containers at -196 ˚C in a goblet of canister. If the goblet is lifted higher, semen straws are exposed to room temperature. Repeated exposure can lower the fertility due to thermal shock injury. Therefore, it is advised to use a long forceps to lift individual straws from goblet.

Fig.1 Right way of lifting straw

- It has been observed that often inseminators pick the straw with fingers, roll it in between palms and carry the thawed semen over ice cubes in a thermos flask. All these procedures are very wrong. By these procedures, sperms will be exposed to lot of fluctuations in the temperature and results in lowered/nil fertility. So while doing AI at doorstep of farmer, it is advisable to carry the semen in liquid nitrogen container, thawing should be done at doorstep of farmer and can be used for insemination within 10—15 minutes after thawing.
- Always use a thermometer to obtain the water temperature of 37˚C. Use a watch to accurately time the thawing of semen for about 20 to 30 seconds.
- The thawed semen straw has to be wiped with cotton/paper, since even a small drop of water can cause coiling of sperm tail and result in lowered fertility.
- Cut the straw in the middle of the air bubble at right angle to prevent semen backflow between the sheath and AI gun.
- Warm the stainless steel inseminating gun to body temperature to prevent cold shock.
- If the inseminating crate is not covered with a roof, wrap the prepared inseminating gun with a clean dry paper towel to protect against dirt, ultraviolet rays of sun and temperature fluctuations.
- After proper restraining of animal, ensuring cleanliness is most essential. After complete removal of faeces and before insertion of AI gun into the vagina, wash the vaginal lips with clean water and cotton to check contamination of AI gun with dung particles.
- AI gun should be inserted into vagina upward at about 30—45 degree angle to avoid possibilities of entering urethral opening on the floor of vagina.
- Remember to place the cervix on to the inseminating gun. Maintain slight forward pressure on the gun while manipulating cervix slightly ahead of gun.
- The site for frozen semen deposition, body of uterus, is quite small. Accurate placement of AI gun tip is probably the most important skill involved in the whole AI technique. Inseminator should be able to identify this target area by feeling for the end of cervix and the tip of the gun as the gun emerges through the internal os.
- Once the gun tip is aligned with internal os, deposit the semen. Semen deposition should take about 5 second.
- If the cow has moved during semen deposition or AI gun has moved, stop semen deposition and correctly reposition the AI gun tip before continuing semen deposition.
- While gun is being withdrawn, its tip should be made to glide over clitoris or clitoris should be massaged manually. This helps in the release of oxytocin which favours sperm transport.
- The AI gun has to be examined for any blood tinge or pus on the tip of gun or backflow of semen between AI sheath and straw.
- If animal has been brought for AI in the early heat, advise owner to bring the animal again on next day for insemination.

If all these steps and precautions are followed strictly at the time of insemination, the conception rate will definitely improve and the efforts of inseminator will succeed.

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LAPAROSCOPY: APPLICATIONS IN VETERINARY PRACTICE

The trend of minimally invasive & less painful surgical techniques is gaining importance and awareness amongst the pet owners. The benefits of performing minimally invasive surgery for patients have become well recognized in human medicine in recent decades and the number and type of conditions that can be treated in this manner has been steadily increasing as equipment and expertise develop.

Laparoscopy is an asset. It is a minimally invasive modality used in veterinary practice as a diagnostic tool and for surgical treatment of various conditions easily and in less stressful way. It is often called as the "**Minimally invasive surgery**"- the smallest possible incisions or "**Key hole surgery**"– the incision to enter the abdomen or "**Band-Aid surgery**"- because the incisions are so small that they can be covered with adhesive bandage strips.

The advantage of laparoscopy is that it is minimally invasive, yet highly accurate, and can provide definitive diagnostic and staging information. By virtue of its small surgical incisions, there is less physiologic stress to the patients, less pain and a quicker recovery. It is generally accepted that laparoscopic biopsies are superior when compared with tissue samples obtained via other percutaneous methods such as ultrasound-guided needle biopsies as the organs are directly visualized and magnified by the laparoscope, smaller lesions (<0.5 cm) that may be missed with other imaging modalities can be detected and biopsied with laparoscopy. This type of information can be of vital importance when staging neoplastic diseases and formulating treatment plans. Laparoscopy also carries a very low complication rate. However, laparoscopy requires new surgical skills, formal training and a substantial investment in specialized surgical equipment.

Veterinary medicine has always lagged behind human medicine in India, and utilization of the laparoscopy is no exception. Although Veterinarians are better aware of the pain suffered by their patients, but it was practically difficulty to utilize the benefit of laparoscopy due to its cost in the last decade. Although it has also been used in animals for several decades, the technique has failed to become widely established in veterinary practice. This may reflect the lack of access to suitable equipment, lack of training, and the impression that companion animals tolerate open surgery so well that minimally invasive techniques are not required.

APPLICATIONS OF LAPAROSCOPY IN VETERINARY PRACTICE

Types of Laparoscopic Procedures: Diagnostic and Operative

DIAGNOSTIC LAPAROSCOPY

Diagnostic laparoscopy is used to examine and biopsy abdominal organs or masses or the surface of most of the organ. Multiple biopsies of an organ, or of multiple organs, can be safely taken and the severity of hemorrhage assessed. One of the most valuable use is to diagnose and stage abdominal cancer. With different techniques the biopsy samples can be collected from different organs of interest such as pancreas, duodenum, liver, spleen, kidney, intestines, gallbladder, reproductive system, urinary bladder etc.

OTOSCOPY

Epithelial lesions and exudates are appreciated and the integrity of the tympanum easily assessed. It is simple to determine whether tympanic perforation and otitis media are evident. Lesions and exudates can be biopsied for cytologic, histopathologic and microbiologic investigations.

RHINOSCOPY

The animal must be intubated and positioned in sternal recumbency. It is possible to examine the dorsal, middle and ventral nasal meatus, dorsal and ventral nasal conchae, and even the ethmoid labyrinth. Biopsies of lesions and exudates can be collected as required.

THORACOSCOPY

Also called Video Assisted Thoracic Surgery (VATS). Respiratory tract diseases are not uncommon and many conditions can be treated if an accurate diagnosis is made early enough. The affections and biopsies for the desired part such as Pleura, Mediastinum, Pulmonary masses, Lymph nodes, Pericardium, Chylothorax, Thoracic duct ligation, Pulmonary masses, Peripheral, single Lung lobectomy, Spontaneous pneumothorax, Pericardiectomy , Window or Subtotal - PRAA division, PDA division etc can be undertaken.

ARTHROSCOPY

Alongwith the Diagnostic examination (i.e. biopsy of bone, cartilage, or synovial membrane) of joints, many other procedures such as Osteochondritis dissecans (OCD), , Cartilage fracture, Reduction and stabilisation of a supraglenoid tuberosity, avulsion, Intra-articular fractures, Treatment of severe degenerative joint disease, Intra-articular fractures, Hip dysplasia (pre- and post-operative assessment of a triple pelvic osteotomy, Osteoarthritis, Hip dislocation, ligament evaluation, Meniscal examination and treatment (i.e. meniscectomy, meniscal release) can be carried out.

SURGICAL / OPERATIVE LAPAROSCOPY

The extensively used part of laparoscopy technique is for operations of the abdominal disorders. Several operations such as **Intestinal feeding tube placement**, removal of **Intestinal foreign body, Gastropexy, Ovariohysterectomy /ovariectomy, Vasectomy, Cryptorchidectomy**, **cystotomy can be performed routinely after acquainting with the technique. However other potential procedures include Bariatric procedures,** Adrenalectomy, Correction of portosystemic shunts, Cholecystectomy, Hernia repair, Removal of abdominal and intestinal masses, Endometriosis, Laparoscopy guided artificial insemination, Follicular oocyte collection etc. are gaining importance now a days.

The field of Laparoscopic Bariatric procedures is a well developed branch of human laparoscopic surgery. It offers an exciting avenue for Veterinary Laparoscopic Surgeons to tackle the ever increasing menace of pet obesity. As per the recent surveys in America, UK and Australia almost 20-25% of the pet population is affected with obesity and suffers from co-morbid conditions such as Osteoarthritis, Type –II diabetes etc.

CURRENT STATUS

Surgical procedures

Exploratory laparoscopy, Ovariohysterectomy, Ovariectomy, Vasectomy, Cholecystectomy, Gastrotomy, Gastropexy & partial gastrectomy, Complex procedures like Feeding tube jejunostomy, enterotomy, Small intestinal anastomosis, Colopexy, rectopexy & cystopexy, Laparoscopic spleenectomy, Laparoscopic adrenalectomy, Intestinal intussusception diagnosis & treatment in dogs. Intra-abdominal vasectomy in dogs is in practice.

Diagnostics

Infertility; ovarian cysts, Neoplasia of liver, spleen, biopsies of liver, kidney, intestines, spleen, duodenum, pancreas, gall bladder, stomach, etc are undertaken.

FUTURE PROSPECTS IN LAPAROSCOPIC SURGERY

Mass sterilization of small animals, Laparoscopic embryo transfer, Laparoscopic ovum pick-up (LOPU), Gasless Laparoscopy in bovines, Laparoscopic ultrasound (LUS), Laparoscopic fetal surgery (fetoscopy), Laparoscopic Surgical Robot (laprobot).

ADVANTAGES OF LAPAROSCOPY

There are a number of advantages to the patient with laparoscopic surgery versus an open procedure. One of the main advantages of laparoscopic surgery, when compared with open surgery is the lesser complication rate. Nevertheless, what is obvious, the minor, severe or even fatal complications may also occur. Laparoscopy enables the surgeon to carry out a thorough visual inspection of the abdominal cavity and obtain tissue samples with minimum trauma to the patients. This in turn allows more accurate diagnosis, treatment or staging of tumours. The other advantages include Fewer foreign bodies (no gauze particles, talc powder, hairs, or Lint), Humid closed environment prevents tissue desiccation, Less tissue trauma and hemorrhage at operative site, Reduced manipulation of structures distant from the operative Site, Early return of bowel motility and ambulation, Lack of postoperative exercise restriction (especially helpful in working or active dogs), Minimum hospitalization time, Reduction in wound infection, dehiscence, bleeding, herniation and nerve entrapment, Minimal immune response, Minimal scar tissue formation, Smaller incisions are more cosmetic, Potentially faster, Excellent magnification and image capture, Better documentation of Lesions.

DISADVANTAGES OF LAPAROSCOPY

Expense of the equipment, Setup time of equipment, Few techniques can be very difficult, Long learning curve, Surgical team required, Usually require a camera operator, Not all procedures can be performed via laparoscopy/ thoracoscopy.

CONTRAINDICATIONS FOR LAPAROSCOPY

Contraindications for laparoscopy are relative and include the uncooperative patient, uncorrectable **advanced pregnancy,** coagulation defects, a**scites,** previous abdominal surgery, adhesions, clotting abnormalities, large masses, Patient condition - **cardiopulmonary disease,** small body, obesity, suspected diffuse peritonitis and the presence of distended abdomen.

COMPLICATIONS

Complications associated with laparoscopy are few. Nevertheless, they may be severe and occasionally fatal. Complications such as Veress needle insertion effects: penetration of organs, injury to abdominal wall, Insufflation: Subcutaneous edema, **Accidental Cauterization of the abdominal wall, Haemorrhage at the site of working,** Gas embolism etc. may be seen.

CONSTRAINTS IN LAPAROSCOPIC SURGERY

Technical constraints

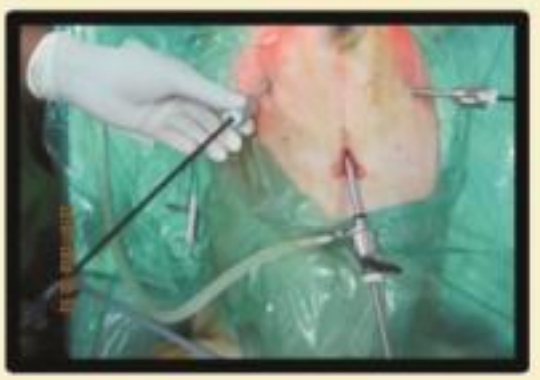
Anesthesia – hypercapnia & acidosis, Veress needle & Trocar injury, Insufflation- subcut., periperitoneal, & subfacial emphysema, Pnuemothorax, Gas embolism, Incisional hernias, Electrosurgical burns, Time consuming - Usually (but not always) longer operating time**,** Sometimes conversion to an open surgery. If there is any intraoperative arterial bleeding maybe very difficult to achieve endoscopically because the blood obscure the field of vision

Non-technical constraints.

Cost of equipment, Long procedural learning curve, High skill level needed, Lack of skilled assistance, Cumbersome maintenance of equipments, Lack of will from surgeons to use the technique are few constraints that need to be overcome.

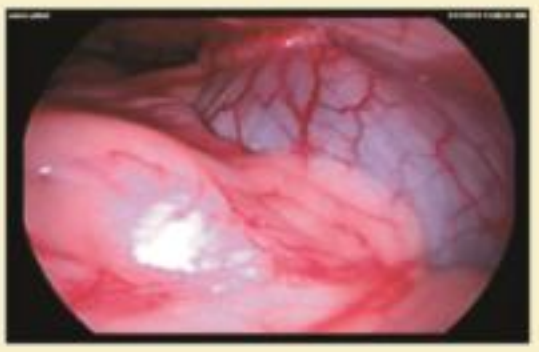
With the development of skills, research and advancement in technology time is not far when laparoscopic surgery will replace many of the traditional surgical procedures in veterinary sciences as well like human medicine field.

Laparoscopic Ovariectomy



Three port Technique for Laparoscopy

Cauterizing the Uterine End of the Ovary



Lap-assisted Cystotomy

Laparoscopic Hands-on Training Programme

Removal of Tetained Testicle

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ENTEROTOXEMIA

Enterotoxaemias- *Cl. perfringens* type A, B, C, D, E

- Type A- diarrheic food poisoning in man and pigs; hemolytic enterotoxaemia in foals and lambs.
- Type B- lamb dysentery
- Type C- Struck in adult sheep; enterotoxaemia in goat, piglets, calves and foals.
- Type D- pulpy kidney disease; Focal symmetrical encephalomalacia.
- Type E- necrotic haemorrhagic enteritis.

Enterotoxemia Caused by *Clostridium perfringens* Type A:

Type A strains of *Cl perfringens* are commonly found as part of the normal intestinal microflora of animals and are incriminated in necrotic enteritis in poultry and dogs, in colitis in horses, and in diarrhea in pigs. *Clostridium perfringens* type A is clearly implicated in a rarely occurring hemorrhagic diarrhea in dogs. The disease is characterized by necrotic enteritis in which there is massive destruction of the villi and coagulation necrosis of the small intestine. These organisms are also associated with chronic intermittent diarrhea in dogs. Untyped *Cl perfringens* also found to proliferate in the intestines of dogs affected with parvoviral enteritis.

Enterotoxemia Caused by *Clostridium perfringens* Types B and C:

Infection with *Clostridium perfringens* types B and C causes severe enteritis, dysentery, toxemia, and high mortality in young lambs, calves, pigs, and foals. Types B and C both produce the highly necrotizing and lethal β toxin that is responsible for the severe intestinal damage. This toxin is sensitive to proteolytic enzymes and disease is associated with inhibition of proteolysis in the intestine. Sow colostrum which contains a trypsin inhibitor has been suggested as a factor in the susceptibility of young piglets. Type C also causes enterotoxemia in adult cattle, sheep, and goats.

Clinical Findings: Lamb dysentery is an acute disease of lambs <3 wk old. Many may die before signs are seen but some newborn lambs stop nursing, become listless and remain recumbent. A fetid, blood-tinged diarrhea is common, and death usually occurs within a few days.

In calves, there is acute diarrhea, dysentery, abdominal pain, convulsions and opisthotonos. Death may occur in a few hours, but less severe cases survive for a few days and recovery over a period of several days is possible.

Pigs become acutely ill within a few days of birth and there is diarrhea, dysentery, reddening of the anus and a high fatality rate; most affected piglets die within 12 hr. In foals, there is acute dysentery, toxemia, and rapid death. Struck in adult sheep is characterized by death without premonitory signs.

Lesions: Hemorrhagic enteritis with ulceration of the mucosa is the major lesion in all the species. Grossly, the affected portion of the intestine is deep blue-purple and appears as an infarction associated with mesenteric torsion. Smears of intestinal contents can be examined for large numbers of gram-positive, rod-shaped bacteria.

Control: Treatment is usually ineffective because of the severity of the disease but if available, specific hyperimmune serum is indicated and oral administration of antibiotics

may be helpful. The disease is best controlled by vaccination of the pregnant dam during

the last third of pregnancy (initially two vaccinations 1 month apart and then annually).

Enterotoxemia Caused by *Clostridium perfringens* Types D (Pulpy kidney disease, Overeating disease)

This classic enterotoxemia of sheep is seen less frequently in goats and rarely in cattle. It is worldwide in distribution and may occur in animals of any age. It is most common in lambs of either <2 wk old or weaned in feedlots and on a high-carbohydrate diet or less often on lush green pastures.

Etiology: The causative agent is *Clostridium perfringens* type D. However, predisposing factors are essential like ingestion of excessive amounts of feed or milk in the very young and of grain in feedlot lambs. In young lambs, the disease usually is restricted to the single lambs because a ewe with twins seldom gives enough milk to allow enterotoxemia to develop. In the feedlot, the disease usually occurs in lambs switched rapidly to high-grain diets. As the starch intake increases, it provides a suitable medium for growth of the causative bacteria, which produce epsilon (toxin. A major effect of the toxin is to cause vascular damage particularly of capillaries in the brain. Many sheep carry strains of *C perfringens* type D as part of the normal microflora of the intestine and serve as the source of organisms to infect the newborn.

Clinical Findings: Usually, sudden deaths in the best-conditioned lambs are the first indication of enterotoxemia. In some cases, excitement, incoordination, and convulsions occur before death. Opisthotonos, circling, and pushing the head against fixed objects are common signs of CNS involvement; frequently, hyperglycemia or glucosuria is seen. Diarrhea may or may not develop. Occasionally, adult sheep are affected; they show weakness, incoordination, and convulsions and die within 24 hr. In goats, the course of disease ranges from per acute to chronic with signs that vary from sudden death to waterydiarrhea with or without blood.

Acutely affected calves not found dead show mania, convulsions, blindness. Sub acutely affected calves are stuporous for a few days and may recover. In goats, diarrhea and nervous signs are seen, and death occurs in several weeks.

Lesions: Necropsy may reveal only a few hyperemic areas on the intestine and a fluid-filled pericardial sac. Rapid postmortem showing autolysis of the kidneys has led to the popular name, pulpy kidney disease; however pulpy kidneys not always found in young lambs and seldom found in affected goats or cattle.

Diagnosis: A presumptive diagnosis of enterotoxemia is based on sudden, convulsive deaths in lambs on carbohydrate-rich feed. Smears of intestinal contents reveal many short, thick gram-positive rods. Confirmation requires demonstration of toxin in the small-intestinal fluid.

Control: Breeding ewes should be given two injections of type D toxoid during first year and one injection, 4-6 wk before lambing, each year thereafter. Enterotoxemia in feedlot lambs can also be controlled by reducing the amount of concentrate in the diet.

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PARAPHIMOSIS IN A STRAY PUP

A 6 month old stray pup was presented with Paraphymosis(complete prolapsed of penis from prepuce). The penis had got engorged and sevierly painfull to touch. It appeared that the condition was atleast 2 days old .

Deep sedation was induced with Xylazine ketamine combination, the penis was flushed with Dilute betadine, Catheterization was done to relieve the full bladder,penis was lubricated using KY gelly and put back in place. A suture was used to reduce the gap and prevent further prolapsed.

IV fluids were used to correct dehydration at 20 ml per kg body weight. Amoxycillin antibiotics were started. The patient was sent home with Elizabeth collar to prevent self trauma and put on oral meloxicam and amoxicillin for 7 days.

On day 3, the suture was removed and the condition had improved.

Paraphimosis-The inability to completely retract the penis into the preputial cavity usually occurs after erection. It is seen most often after semen collection or coitus. The skin at the preputial orifice becomes inverted, trapping the extruded penis and impairing venous drainage. Other causes of paraphimosis include a small preputial opening, priapism, foreign objects around the penis, a constricting band of hair at the preputial orifice, or trauma. Paraphimosis is easily differentiated from priapism (persistent erection without sexual stimulation), congenitally shortened prepuce, congenital deformity of the os penis, or penile neoplasia or hematoma on the basis of physical examination and palpation.

Paraphimosis warrants veterinary intervention if not resolved quickly. The exposed penis quickly becomes edematous, because its venous drainage is compromised. With continued exposure, the mucosa becomes dry and painful. Self-trauma exacerbates the condition. If recognized early, before severe edema and pain develop, paraphimosis is easily treated. Treatment begins with gentle cleansing and liberal lubrication of the exposed penis. The penis is then replaced inside the prepuce by first sliding the prepuce in a posterior direction, extruding the penis further. This everts the skin at the preputial orifice; usually the prepuce then slides easily over the penis. The edema resolves promptly once circulation is restored. Hypertonic solutions can be useful in difficult cases. If the everted prepuce does not slide over the edematous, exposed penis, a cold compress may be applied with gentle digital pressure to act as a pressure bandage. A temporary purse string suture can be placed to keep the penis inside the prepuce.

With paraphimosis due to other causes, or of longer duration, sedation or general anesthesia can be required. It may be necessary to incise the preputial skin to thoroughly examine the preputial cavity, remove restricting material, and relieve venous obstruction. The penis is then replaced in the preputial cavity, and the incision is closed. If the urethra has been damaged, temporary placement of a closed-system indwelling urinary catheter may be needed to prevent stricture formation.

Dr. Brijesh Naik