Pervious Urachus in Calves- A Report of Three Cases

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Abstract- Three female Ongole calves of age less than two weeks with the symptoms of dribbling of urine from both vulva and umbilicus were diagnosed with pervious urachus a congenital anomaly and the same was corrected surgically under local infiltration analgesia. Normal urination from vulva was found in all the calves immediately after surgery and none showed postoperative complications.

Keywords: Calves, Pervious urachus, Surgery, Ascending infections, vest over pant sutures.

Introduction

During prenatal life, urinary bladder communicates with allantois through a structure known as urachus which becomes atrophied and its lumen gets cicatrized after parturition (Laverty and Salisbury, 2002). Partial or complete failure of lumen obliteration of this structure results in different anomalies like pervious urachus where complete length of urachal lumen fails to obliterate (Langan et al., 2001); urachal diverticulum, where the lumen of urachus fails to obliterate nearer to the bladder (Remedios et al., 1994); umbilical fistula where the lumen of Urachus fails to obliterate nearer to umbilicus and urachal cyst where the middle part of urachus remains patent (Lischer et al., 1994).

Animals with this condition show dribbling of urine from umbilicus and the area surrounding it remains wet (Anjaneya et al., 2016). Usually pervious urachus is accompanied by omphalitis, omphalophlebitis, urachitis and uroperitoneum. The present paper describes the diagnosis and surgical management of pervious urachus in three Ongole calves.

Case History and Clinical Observations

Three female Ongole calves of age less than two weeks were presented to the clinics with a history of urination through umbilical opening besides vulva. Cases 1 and 2 showed free flow of urine through the vulva and occasional dribbling of urine from the umbilicus; whereas, case 3 showed free flow of urine through umbilical opening and only occasional dribbling from vulva. No signs of omphalitis or any systemic infections were noticed in any of the cases. On careful clinical examination, the openings of urachus and umbilicus could be identified individually. Caudal to the umbilicus, a hard card like structure could be palpated (Figure 1). In all the three calves, the structures of vulvo-vagina like clitoris, external urethral orifices etc. were normal.

Based on the findings of clinical examination, the condition was diagnosed as pervious urachus and it was decided to perform surgical correction. In case-3, catherization of urachus was performed using No 7 infant baby feeding tube whose lateral abdominal radiograph disclosed the path of urachus (Fig. 2). In all the animals Physiological, hematological and biochemical parameters were well within the normal ranges.

Treatment and Discussion

The calves were prepared for aseptic surgery and were given light plane of anesthesia with ketamine hydrochloride at the dose rate of 1mg/kg body weight and Diazepam at the dose rate of 0.2 mg/kg body weight intravenously. Local analgesia was achieved by 2% Lignocaine hydrochloride. In cases 1 and 3, elliptical incision of skin was given around the umbilicus. After separation of fascia, the urachus and blood vessels were identified through blunt dissection. The urachus was traced up to the bladder and was ligated as close to the bladder as possible (Fig-3) and then the same was resected (Fig. 4). The abdominal rent was closed by the vest over pant sutures using No:1 polyglactin and the skin edges were approximated by a series of interrupted sutures with sterile monofilament nylon. In case-2, considering the owners request, laparotomy was performed at left paramedian site, to conserve the umbilicus (Fig 5). Urachus was identified and ligated at two points one close to bladder and the other close to umbilicus and removed the middle portion. The urachus, peritoneum and umbilicus were free from infection in all the three cases. Laparotomy wound was closed similarly as performed in the other two cases. Streptopenicillin @ 100mg/10Kg Bwt I/M
O.D was given for 5 days and Melonex @ 0.2 mg/Kg Bwt I/M. O.D was given for 3 days. The animals passed urine from vulva immediate postoperatively and all the animals showed uneventful recovery.

Pervious urachus was reported as a common anomaly in domestic foals (Mc Gavin et al., 2001), cow calves (Dilip Kumar and Dhage, 2010) and as a rare finding in buffalo calves by (Mouli, 1988 and Sharma and Sing, 2004). Etiological factors responsible for this condition are failure of urachal involution, neonatal omphalitis, umbilical abscess and congenital urethral obstruction (Mc Gavin et al., 2001). In the present study no systemic infections were noticed in any of the cases which could be attributed to their early presentation. Contrary to this, Anjaneya et al., (2016) observed uroperitoneum, cystitis, umbilical cord infection and urinary obstruction in a cow calf suffering from this condition. If the urachus remains open for longer period it may act as a source of ascending infections to the bladder (Langan et al., 2001) which was not found in any of the cases under present study. Catheterization of urachus in case-3 was performed as the lumen of urachus was found to be relatively larger and subsequent radiography showed a clear outline of the path of urachus.

Urethra was considered to be patent in all the cases as the animals were voiding urine through urethral opening at vulva besides urachal opening at umbilicus. Prognosis of pervious urachus condition is grave when the urethra is permanently occluded (O’Connor, 1980). In the present study authors ascertained the condition of urethra in all the calves before the initiation of treatment. Urachus was ligated close to the bladder and excised as suggested by Oehme and Prier, (1974) to treat the animals suffering from this condition. In case-2 umbilicus was retained during surgery to conserve the normal appearance of animal so that there will not be any depreciation in the cost of animal. Treatment procedures like application of blister around the orifice, needle point firing, ligation of urachus, inserting a needle suture were advised by O’Connor, (1980) to treat pervious urachus condition where as Sharma and Singh, (2004) suggested application of 90% phenol dipped cotton swab over the urachus as a conservative method of treatment. As the farmers who own these animals wanted a permanent remedy and as there were no complications, conservative therapy could not be even thought off and surgery was resorted to. Finally, earlier diagnosis and surgical resection of patent urachus in three Ongole calves ensured a good recovery.

**Conclusion**

Pervious urachus is a congenital anomaly reported in young calves characterized by voiding of urine both through the vulval and umbilical openings. This should be treated surgically as early as possible by resecting the urachus to avoid ascending infections to bladder and peritoneum.

**References**


Figures

Figure 1: Note the opening of pervious urachus caudal to umbilicus.

Figure 2: Radiograph showing the catheter from umbilicus to urinary bladder indicating the path of urachus

Figure 3: Placement of ligature close to the urinary bladder

Figure 4: Photograph showing the resected urachus and umbilical vessels in case 3

Figure 5: Photograph showing the suture line preserving the umbilicus

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