**Surgical management of patent urachus in calf in Upazilla Veterinary Hospital, Sariakandi, Bogra.**

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**Surgical management of patent urachus in calf in Upazilla Veterinary Hospital, Sariakandi, Bogra.**

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Abbreviations Elaborations

HF Holstein Friesian

mg/kg Miligram per kg

ULO Upazilla Livestock Officer

i/m Intramuscularly

**ABSTRACT**

A new born HF cross bred female calf with the signs of greater umbilicus with larger umbilical opening containing umbilical cord and dribbling of urine from the umbilicus without any systemic infections was presented to Sariakandi Upazilla Veterinary Hospital, Bogra dated on 13 March, 2018. All physiological parameters of the patient was taken during the handling of clinical case. The temperature, heart rate, respiration rate all were recorded normal. The external urethral orifices was found normal. The case was diagnosed as patent urachus ( a congenital abnormality of urinary bladder) and decided to perform surgical intervention. To perform the surgery, regional anesthesia (Ring block) with 2% lidocaine hydrochloride was infiltrated around the umbilical opening. The urachus and umbilical arteries were ligated by chromic catgut closer to the bladder as much as possible and excised. Umbilicus was retained during surgery to conserve the normal appearance of animal. The calf started normal urination just immediately after surgery. Postoperatively, Antimicrobial (ceftriaxone )and analgesic( meloxicam) were administered at the rate of 10 mg/kg and 0.2 mg/kg body weight intramuscularly for 5 days and 3 days respectively. Antiseptic dressing was performed on every alternative day upto 5 days. Finally the calf recovered within 12 days without any complications.

**Key words:** Urachus, Calf, Surgery, Sariakandi, Bogra.

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**INTRODUCTION**

**Chapter 1**

The most common congenital abnormality of urinary bladder is patent urachus. Urachus is a fibrous remnant of the allantois, a canal that drains the urinary bladder of the fetus that joins and runs within the umbilical cord. If the lumen of urachus fails to obliterate completely which results in patent urachus ( Langan *et al*., 2001). This condition is more commonly seen in foals ( Gavin *et al*.,2001), cow calves ( Dilip kumar and Dhage, 2010) and rare in buffalo calves (Mouli, 1998 and Sharma and Shing, 2004). Etiological factors responsible for the condition may be failure of urachal involution, neonatal omphalitis, umbilical abscess and congenital urethral obstruction ( Gavin *et al*., 2007 ). Female animals with patent urachus show dribbling of urine both from umbilicus and vulva and the area surrounding it remains wet (S. N. *et al*., 2016). Usually patent urachus is accompanied by omphalitis, omphalophlebitis, urachitis, and uroperitonium. Management must be surgery and the urachus should be resected throughout its entire length. If the urachus remains open for longer period it may act as source of ascending infections to bladder ( Langan *et al.*, 2001) which was not found in this study. Prognosis of patent urachus is grave when the urethra is permanently occluded (O’Connor, 1990). In this study, urachus was ligated close to the bladder and excised as suggested by Oehme and Prier, (1974). Treatment procedures like application of blister around the orifice, needle point firing, ligation of urachus, inserting a needle suture were advised by O’Connor, (1990) to treat patent 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 and topical intraurachul application of cauterizing agents or surgical correction of umbilical agents suggested by Braun *et al*., (2009); Grover and Golden, (2011). Development of secondary bacterial urinary tract infections is a common sequelae of patent urachus with continuous urinary incontinence and urine scalding of the ventral abdomen Baird, (2008). The present study describes the diagnosis and surgical management of patent urachus in newly born female HF cross bred calf presented to Upazilla Veterinary Hospital.

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**Chapter 2**

**CASE PRESENTATION:**

On 13 march, 2018 a newly born female HF cross bred calf had been brought to Sariakandi Upazilla Veterinary Hospital. The owner reported that the calf voided urine from the umbilicus. On careful clinical examination , there was found greater umbilicus with larger umbilical opening (approximately two inches) containing umbilical cord. The temperature, heart rate, respiration rate all were recorded normal. The external urethral orifices was found normal. No systemic involvement was found. Based on the clinical examination, it was diagnosed as patent urachus and decided to perform the surgical intervention.

**SURGICAL INTERVENTION AND SUCEESS:**

Prior to the surgical intervention, a single dose of antibiotic (Ceftriaxone) was administered at the rate of 10mg/kg body weight intramuscularly to prevent the infections occurring at the surgical site as effectively as a twenty four hour dosing regimen and pre-emptive analgesia was achieved with Meloxicam at the rate of 0.2mg/kg body weight intramuscularly.

The surgical site was prepared by removing the hair, visible dirts, debris and it was washed with povidone iodine as an antiseptic solution to perform surgery aseptically. Regional anesthesia (Ring block) was achieved by infiltrating 2% lidocaine hydrochloride, 1 ml/cm area around the umbilicus. Round incision was given around the umbilical opening to facilitate the mobilization of the umbilical cord. Then a linear incision was given over the umbilical cord to visualize the urachus and the umbilical arteries. Then the urachus and both umbilical arteries were tried to trace as much closer to the urinary bladder as possible. Both urachus and umbilical arteries were then ligated with chromic catgut number 2 as much closer to the urinary bladder as possible. Then both urachus and umbilical arteries were excised. The umbilical cord was then excised. The opening was closed by giving skin suture (Horizontal mattress) with sterile monofilament nylone. A antiseptic medicated thin layer of gauze was placed over the skin suture . The animal started normal urination immediately after surgery. Post operatively, the animal was treated with same antibiotic and analgesic for 5 days and 3 days respectively. Antiseptic dressing was performed on every alternative day upto 5 days. Skin sutures were removed on tenth post operative days. The calf recovered within 12 days without any uneventful incidences which was ensured by following up the case for at least 1 month talking with the farmer over phone.

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**FIGURES**





**Figure 4: Photograph showing the excised urachus, umbilical arteries and umbical cord.**

**Figure 1:** **Note the opening of patent urachus through umbilicus.**

**Figure 2: Umbilical cord with its contents (urachus and umbilical arteries).**

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**Figure 3: Linear incision on umbilical cord to visualize urachus and umbilical arteries as closer to bladder as possible.**



**DISCUSSIONS**

**Chapter 3**

This case had been brought to the Upazilla Veterinary Hospital with the symptoms of greater umbilicus with larger umbilical opening containing umbilical cord and dribbling of urine from the umbilicus without any systemic infections.That was a newly born female HF cross bred calf. The temperature, heart rate, respiration rate all were recorded normal. The external urethral orifices was found normal. Whereas kumar *et al*., (2016) observed urination both from the vulva and umbilicus and swollen umbilicus caudally in three female ongole calves of less than two weeks. On the Contrary, S.N *et al*., (2016) observed dribbling of urine from the umbilicus in one calf and tube like swelling hanging from the umbilicus without any dribbling of urine in another one calf in veterinary dispensary, Galataga ( Chikkodi). Whereas Vadalia *et al*.,( 2017) observed dribbling of urine both from the umbilicus and external urethral orifices in Six gir calves. In this case ceftriaxone and meloxicam at the rate of 10 mg/kg body weight, i/m and 0.2 mg/kg body weight ,i/m were administered preoperatively. Whereas S.N *et al*., (2016) used streptopencillin at the rate of 10 mg/ kg body weight i/m and meloxiacam at the rate of 0.3mg /kg body weight i/m preoperatively in two cow calves with this condition. On the contrary, Vadalia *et al*., (2017) used ceftriaxone and meloxicam at the rate of 10 mg/kg and 0.2 mg/kg body weight intramuscularly preoperatively in six gir calves with this condition. The surgery was performed under regional anesthesia (ring block) using 2% lidocaine hydrochloride in this case and S.N *et al*., (2016) ; Vadalia *et al*.,(2017) also performed the surgery under local anesthesia. Whereas kumar *et al*., (2016) performed the surgery under 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. Round incision was given around the umbilical opening to facilitate the mobilization of the umbilical cord in this case. Whereas Vadalia *et al*., (2017) performed the surgery in six gir calves with this condition by giving linear incision posterior to umbilicus on mid ventral line on linea alba .On the contrary, kumar *et al*., (2016) had given elliptical incision around the umbilicus. Whereas S.N *et al*., (2016) had given incision over the umbilicus cranialy and caudaly. The excision procedure of urachus and umbilical arteries in this case was similar to excision procedure of Vadalia *et al*., (2017) ; kumar *et al*.,(2016) . In this case skin was closed by a series of horizontal mattress with sterile monofilament nylone. whereas kumar *et al*.,(2016) closed the abdominal rent by vest over pant sutures using number 1 polyglactin and the skin edges by a series of interrupted sutures with sterile monofilament nylon. On the contrary, Vadalia *et al*., (2017) closed the skin edges by a series of horizontal mattress with sterile black braided silk number 2. After completion of surgical procedure normal urination was seen immediately in this case which was similar to kumar *et al*., (2016) ; Vadalia *et al*., (2017). Same post operative care was followed in this case which was suggested by kumar *et al*., (2016) ; Vadalia *et al*., (2017). After all, early diagnosis and surgical management of patent urachus ensured uneventful recovery in this case.

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**CONCLUSION**

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Patent urachus is a congenital anomaly of urinary bladder reported in young calves characterized by greater umbilicus with larger umbilical opening ; voiding of urine from the umbilicus. This should be treated surgically as early as possible by resecting the urachus to avoid ascending infections to bladder and peritoneum.

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**BIOGRAPHY**

I am Md. Ariful islam, from Bogra. I have completed my Secondary School Certificate (SSC) examination in 2010 with GPA-5 from Sariakandi Govt. High School, Sariakandi, Bogra and Higher Secondary Certificate (HSC) examination in 2012 with GPA 5.00 from Govt. Azizul Haque college, Bogra. Currently I have been doing my internship programme which is the compulsory of DVM programme under the Faculty of Veterinary Medicine, Chittagong Veterinary and Animal Sciences University. My favorite hobby is reading books. I feel much interest in exploring new techniques for contributing in development of veterinary field in Bangladesh.



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