*Case Report*

# Urolithiasis in Buffalo Calf

**Y. Ravikumar*, K. Sandhyarani, B. Ashok Kumar Reddy, M. Lakshmi Namratha and M. Lakshman**

Department of Veterinary Pathology, PVNRTVU, Hyderabad-500030, INDIA

***Corresponding author:** ravikumaryadala@gmail.com

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**Abstract**

*Nine months old calf was died and brought for postmortem examination at College of Veterinary Science, Rajendranagar, Hyderabad. After opening of the carcass, peritoneum was filled with straw coloured and foul-smelling fluid. All organs were severely congested but the kidneys were edematous with dilated pelvis. Uroperitoneum was observed because of rupture of urinary bladder. The mucosa of bladder was showing streaks of haemorrhages, ulcers and hematoma. Urethra was fibrosed and showed liths in the lumen. Based on the examination it was confirmed as urolithiasis.*

**Key words:** Calf, Urolithiasis

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## Introduction

Literal meaning of urolithiasis is liths in the urethra. The term uremia means raised levels of urea and other nitrogenous compounds in blood, was first used by Piorry to describe the clinical condition associated with renal failure. Urea is one of the primary components of urine. If the kidneys are no longer able to filter the waste from body and send it out through urine and the waste gets into bloodstream causing a potentially life-threatening condition. There are several conditions that lead to uremia among which obstructive urolithiosis is important one. Simple urolithiasis has a relatively little importance, but obstructive urolithiasis has a significant life-threatening consequence (Radostits *et al.*, 2000). Urolithiasis is reported worldwide and occurs in all species of animals with equal occurrence in both sexes, however, obstruction is not generally caused in females due to short length and flexible lumen of urethra (Radostits, 2000). Uroliths can lodge anywhere in urinary tract from renal pelvis to glans penis but the common sites of obstruction are distal part of sigmoid flexure and glans penis in bovines. The disease results in heavy economic losses to the livestock industry (Makhdoomi and Ghazi, 2013). In India, urolithiasis has mostly

been reported in bullocks, goat, sheep and buffaloes from different corners of the country (Tyagi and Singh, 1993). Urethral obstruction causes distension of the urinary bladder and as the bladder continues to distend the animal exhibits signs of pain reactions until perforation of the urethra or rupture of bladder occurs. Such complications usually occur within 2-3 days if the obstruction is not relieved (Makhdoomi and Ghazi, 2013). Rupture of the bladder in turn, results in a flow of urine into the peritoneal cavity with subsequent uroperitoneum. Rupture of the urinary bladder or urethra, uraemia and death are observed as the most common sequel to obstructive urolithiasis especially in buffalo calves (Rafee *et al.*, 2015). Among bovines, buffalo calves had a significantly higher occurrence of obstructive urolithiasis than cow calves and buffaloes. Age-wise, young animals were affected more frequently than adults (Singh *et al.*, 2014). The present paper describes a case of obstructive urolithiasis which lead to uremia in a buffalo calf.

**Materials and Methods**

Nine months old calf was died and brought for postmortem examination at College of Veterinary Science, Rajendranagar, Hyderabad.

**Results and Discussion**

After opening of the carcass, peritoneum was filled with straw coloured and foul-smelling fluid (Fig. 1). All organs were severely congested but the kidneys were edematous with dilated pelvis (Fig. 2). Uroperitoneum was observed because of rupture of urinary bladder (Fig. 3). The mucosa of bladder was showing streaks of haemorrhages (Fig. 4), ulcers and hematoma (Fig. 5). Urethra was fibrosed and showed liths in the lumen (Fig. 6). Based on the examination it was confirmed as urolithiasis.

**Fig. 1:** Peritoneum was filled with straw coloured and foul-smelling fluid.

**Fig. 2:** Edematous kidney with dilated pelvis.







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**Fig. 3:** Rupture of urinary bladder

**Fig. 4:** The mucosa of bladder was showing streaks of haemorrhages.

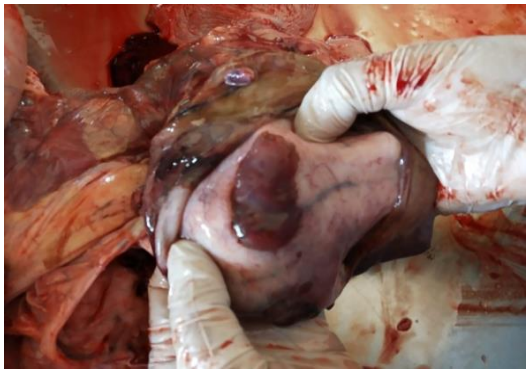

**Fig. 5:** The mucosa of bladder was showing hematoma.

**Fig. 6:** Urethra was fibrosed and showed liths in the lumen.

Urethral obstruction has been extensively reported in ruminant species (Smith *et al.,* 1983). Among the bovine species, buffalo calves (81.25%) suffered more frequently than the cow calves (9.82%) and bullocks (8.92%) according to the studies of Kushwaha *et al.* (2014) and Gugjoo *et al.* (2013). Makhdoomi and Ghazi (2013) recorded a significantly higher incidence of obstructive urolithiasis in buffalo calves than cow calves. Ozturk *et al.* (2002) and Ranganath *et al.* (2013) reported that the affections of urinary tract in ruminants such as congenital anomalies like hypospadias, patent urachus, urethral dilatation and acquired affections like obstructive urolithiasis leading to urethral or urinary bladder (UB) rupture. The formation of calculi and the development of urolithiais occurs in phases; from the formation of nidus, concentration of urine and lastly precipitation of various minerals such as phosphorus from which struvite crystals are formed. The most common factor for uremia in calves as a consequence of urolithiasis is due to dietary imbalances resulting from disproportionate calcium-phosphorus ratios (Ca:P ratios) have been incriminated in formation of uroliths and crystals in the urine (Makhdoomi and Ghazi, 2013). Hence, it is important to limit feeding of concentrate to ruminants and other livestock due to imbalance in the Ca:P ratio. The best feeding regime is 70% roughage and 30% concentrate feed based on dry matter. It is also crucial to educate farmers on the clinical signs associated with obstructive urolithiasis in order to ensure institution of early treatment for better prognosis.







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