

## **Surgical affections of cattle in the milk-shed areas of Bangladesh**

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### **Abstract**

Little is known of the occurrence of surgical affections of cattle at the government veterinary hospitals of Bangladesh. This study was undertaken to determine the occurrence of surgical disorders in five Upazila Veterinary Hospitals (UVH) in greater Pabna administrative district. A total of 33,584 sick animals were investigated and the overall occurrence of surgical disorders is 12.9%. The most common surgical affection is navel ill (25.8%) followed by myiasis (13.0%), foot diseases (11.3%), arthritis (8.8%) and teat obstruction (8.4%). Navel ill, umbilical hernia, arthritis, horn affections, urolithiasis and tail gangrene are more common in male than female. Foot diseases, myiasis, upward patellar fixation and hip dislocation are more common in female than male. Myiasis and arthritis are found more in summer, whereas foot diseases, urolithiasis and teat crack are more common in winter. (*Bangl. vet.* 2014. Vol. 31, No. 1, 38 - 45)

### **Introduction**

Livestock is the second enterprise after traditional crop agriculture in Bangladesh. About 36% of protein requirement of the people of Bangladesh is fulfilled by livestock (Ali *et al.*, 2011). Surgical disorders are serious abnormal condition in animals and may cause fatality if not treated in time. Various violences and accidents hinder growth, performance and economic value (Hossain *et al.*, 1986). Surgical affection like hernia, atresia ani, navel ill, myiasis, lameness and fracture cause great loss to the farmers of Bangladesh (Hossain *et al.*, 1986). External violence produces open wounds in the skin and the incidence is common in ruminants (Nooruddin and Dey, 1990). Healing of wound is a complex biological event (Gillitzer and Goebeler, 2001) and the consequences of stress impair the tissue repairing process (Pyter *et al.*, 2014). Myiasis constitutes a major threat to livestock industry and may occur all the year round in the tropics (Millikan, 1999). Atresia ani is the second most common surgical affection of calves in Bangladesh (Das and Hashim 1996). In addition, lameness in cattle is a serious problem and causes significant economic losses (Blowey, 1993). Contamination of umbilicus is a source of infection leading to septicemia and navel ill in neonates. Urolithiasis can also cause significant economic losses due to urethral obstruction, causing rupture of the urethra or bladder or death (Parker, 1981). There are huge grazing lands in Pabna which provide plenty of green grasses and legumes to dairy animals. In addition, indigenous Pabna breed are popular for milk production. These local breed of cow are suitably reared in Pabna. Huge milk yield is

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a common scenario in this area, that is why Pabna is called as milk-shed area of Bangladesh. However, the information of occurrence of various surgical disorders in animals is not well organized in different locations. Therefore, comprehensive survey is necessary to establish information for management of the surgical disorders in the milk-shed area of Bangladesh.

## Materials and Methods

Data was collected from Pabna and Sirajgonj districts during July 2011 to June 2012, from the Upazila (Sub-districts) hospitals of Shahjadpur, Bhangura, Shanthia, Bera and Faridpur.

A total of 33,584 animals were brought to Government Veterinary Hospitals for treatment, and among them 4,332 were suffering from surgical disorders. The animals with surgical diseases were classified on the basis on sex, age and season. The study period was divided into three seasons: summer (March - June), rainy (July - October) and winter (November - February).

### *Data analysis*

The data were checked manually for inconsistencies, recording errors or missing information. The potential errors were evaluated and corrected. Incomplete data were excluded and all completed information was analyzed in the Microsoft Excel Spreadsheet, and percentages of surgical disorders in different sex, age and seasons were calculated.

## Results and Discussion

The surgical disorders in animals in Pabna district are shown in Table 1 and Fig. 1. Bera Upazilla was more prone to surgical disorders (16.7%). Among them navel ill (25.8%) was the highest followed by myiasis (13.0%), foot diseases (11.3%), arthritis (8.8%), teat obstruction (8.4%) and teat crack (7.7%). Most of the animals are reared in semi-intensive or free rearing system in rural areas and are exposed to dust and mud. Newly born calves are also exposed to huge organisms, causing navel ill. The umbilicus is contaminated from wet floors, leading to septicemia in neonates (Amare, 2014). Joint ill is a common condition of calves that can cause 6% mortality in calves of Africa (Wudu *et al.*, 2008). In contrast calves receive passive immunity by ingestion of colostrum after birth and survive with good health (Tizard, 1995).

The rate of navel ill affection is higher in male (36.7%) than in female (19.6 %; Table 2 and Fig. 2). Preputial sheath of male animal always remains moist in the umbilical region and favours umbilical infection. The occurrence of navel ill is higher in rainy season (33.8%) followed by summer (29.9%) and winter (14.8%). This is probably due to muddy land, less exercise, and unhygienic floors (Huang *et al.*, 1995). These results are similar to 12.5% umbilical affections in cattle reported by Sarker *et al.* (2013). However, the occurrence of navel ill in Bangladesh is near about 1% reported earlier

(Hossain *et al.*, 1986). The occurrence of navel ill is reported only in younger animals at 0-1 year of age.

Table 1. Occurrence of surgical affections of cattle in five Upazila Veterinary Hospitals of milk-shed area

Surgical affection	Santhia (n = 5483)	Bera (n = 8253)	Shahjadpur (n = 6825)	Faridpur (n = 8539)	Bhangura (n = 4484)	Total (n = 33584)	Total (%)
Umbilical hernia	20	74	56	10	25	185	4.3
Atresia ani	05	13	14	12	03	47	1.1
Knuckling of fetlock	02	08	05	00	03	18	0.4
Upward patellar fixation	25	45	12	10	05	97	2.24
Dermoid cyst	07	26	31	20	00	84	1.9
Navel ill	100	323	283	160	250	1116	25.8
Gangrenous mastitis	10	16	22	10	14	72	1.7
Teat obstruction	40	93	72	120	40	365	8.4
Teat crack	20	102	86	50	75	333	7.7
Tail gangrene	08	17	18	10	00	53	1.2
Horn affections	02	49	52	25	05	133	3.1
Dislocation of hip joint	15	08	13	00	06	42	1.0
Hoof affections	200	130	90	20	50	490	11.3
Fracture	00	12	28	36	03	79	1.8
Myiasis	150	215	65	100	35	565	13.0
Urolithiasis	80	72	35	48	35	270	6.2
Arthritis	31	173	24	130	25	383	8.8
Total	715 (13.0%)	1376 (16.7%)	906 (13.3%)	761 (8.9%)	574 (12.8%)	4332 (12.9%)	100

n = number of cattle

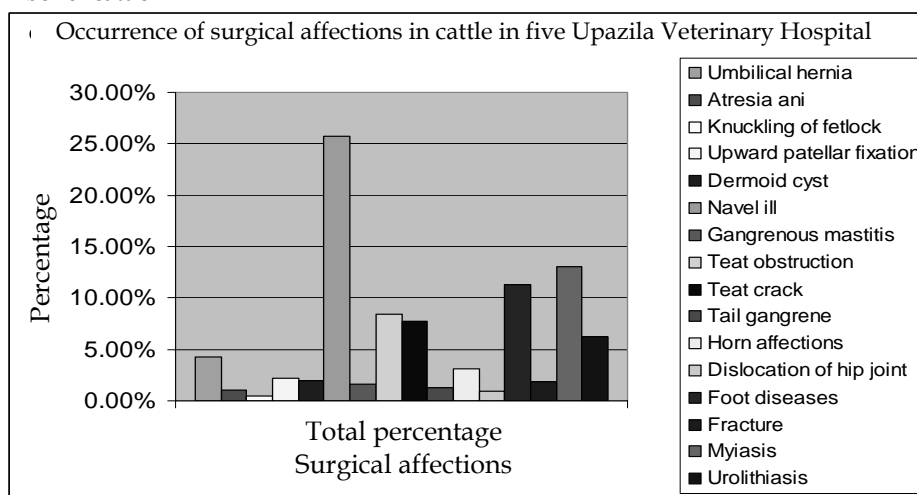


Fig. 1. Percentage of surgical affections of cattle in five Upazila Veterinary Hospitals of milk-shed area

Table 2. Surgical affections occurring in different sex of cattle in milk-shed area

Name of affections	Male (n = 1780)		Female (n = 2552)		Total (n = 4 332) (%)
	Number	Occurrence (%)	Number	Occurrence (%)	
Umbilical hernia	136	7.6	49	1.9	185(4.3)
Atresia ani	37	2.1	10	0.4	47(1.1)
Knuckling of fetlock	11	0.6	7	0.3	18(0.4)
Upward patellar fixation	34	1.9	63	2.5	97(2.2)
Dermoid cyst	57	3.2	27	1.1	84(1.9)
Navel ill	617	34.7	499	19.6	1116(25.8)
Gangrenous mastitis	0	0.0	72	2.8	72(1.7)
Teat obstruction	0	0.0	365	14.3	365(8.4)
Teat crack	0	0.0	333	13.1	333(7.7)
Tail gangrene	41	2.3	12	0.5	53(1.2)
Horn affections	101	5.7	32	1.3	133(3.1)
Dislocation of hip	3	0.2	39	1.5	42(1.0)
Hoof affections	117	6.6	373	14.6	490(11.3)
Fracture	17	1.0	62	2.4	79(1.8)
Myiasis	207	11.6	358	14.0	565(13.0)
Urolithiasis	270	15.2	0	0	270(6.2)
Arthritis	166	9.3	217	8.5	383(8.8)
Total affections	1780	41.1	2552	58.9	4332

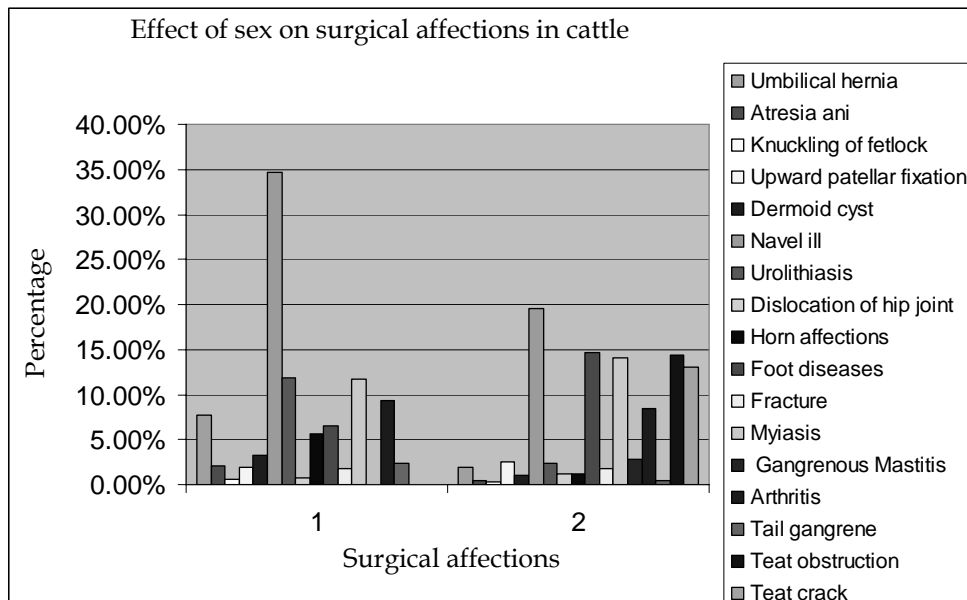


Fig. 2. Effects of sex on surgical affections in cattle in milk-shed area

Myiasis is the second most prevalent surgical disorder (13.0%) in this study. Animals reared in semi-intensive or free rearing system in rural area are easily exposed to flies. Moreover, summer is the most favourable season for the breeding of flies. It is also reported that the number of larvae is higher in spring, and then decreasing in autumn (Arslan *et al.*, 2009). The huge number of flies contributes to the production of large number of maggots which are a threat to life (Kaul, 2011). The affection rate is very close to male (11.6%) and female (14.0%) in this study. However, lower infestation rate has been reported by previous investigator (Sarker *et al.*, 2013). Moreover higher (20.9%) rate of myiasis has been seen in summer than winter (2.8%) (Table 3). The result is closely related to the finding of Arslan *et al.* (2009).

Table 3. Effects of season on surgical affections in cattle of milk-shed area

Affection	Summer (n = 1997)		Rainy season (n = 952)		Winter (n = 952)		Total affection
	Number	%	Number	%	Number	%	
Umbilical Hernia	102	5.1	43	4.5	40	2.9	185
Atresia ani	31	1.6	9	1.0	7	0.5	47
Knuckling of fetlock	5	0.3	4	0.4	9	0.7	18
Upward patellar fixation	31	1.6	23	2.4	43	3.1	97
Dermoid cyst	43	2.2	27	2.8	14	1.0	84
Navel ill	597	29.9	315	33.1	204	14.8	1116
Gangrenous mastitis	37	1.9	18	1.9	17	1.2	72
Teat obstruction	93	4.7	67	7.0	205	14.8	365
Teat crack	73	3.7	47	4.9	213	15.4	333
Tail gangrene	17	0.9	28	2.9	8	0.6	53
Horn affections	89	4.5	27	2.8	17	1.2	133
Dislocation of hip	22	1.1	13	1.4	7	0.5	42
Hoof affections	113	5.7	83	8.7	294	21.3	490
Fracture	47	2.4	7	0.7	25	1.8	79
Myiasis	417	20.9	109	11.4	39	2.8	565
Urolithiasis	87	4.4	56	5.9	127	9.2	270
Arthritis	193	9.7	76	8.0	114	8.2	383
<b>Total</b>	<b>1997</b>		<b>952</b>		<b>1383</b>		<b>4332</b>

Hoof affection is the third most common surgical disorder in cattle. The incidence of hoof affections is higher in the winter (21.3%) than rainy season (8.7%) and summer (5.7%). It is due to outbreak of foot and mouth disease, muddy land, less exercise, and

unhygienic floor (Huang *et al.*, 1995). The occurrence of hoof affection is higher in cows considering the sex. Prevalence of foot disease is higher in male than in female (Noman *et al.*, 2013). Cows of Pabna region are mostly crossbred with Zebu and Holstein-Friesian. Heavy weight of cow may cause chronic laminitis, sub-acute laminitis and heel horn erosion.

Urolithiasis is recorded 6.2% in cattle in this present investigation. Samad (2001) reported very low percentage (0.02%) of obstructive urolithiasis in animal. The percentage of urolithiasis is higher in male (11.9%) than female (2.3%), due to structural difference of urinary tract. This result agrees with recent findings of urolithiasis in Pabna by Kibria (2010). It may be due to unavailability of green grass, and high concentrate diet, or imbalanced intake of minerals (Hesse *et al.*, 2009). Some concentrates have high levels of phosphorous and magnesium but relatively low calcium and potassium, which predisposes to the condition. The occurrence of urolithiasis is higher in winter (9.2%) than summer (4.4%) (Table 3). It may be due to scarcity of green grass and lower intake of water in winter.

The surgical affections related to different ages are recorded in Table 4. The occurrence of navel ill is 67.4% in animals under one year. The high incidence of navel ill is due to unhygienic management of newborn. On the other hand the occurrence of dislocation of hip, atresia ani, knuckling of fetlock, tail gangrene, dermoid cyst and horn affections is low.

Table 4. Effects of age on surgical affections in cattle of milk-shed area

Name of affections	Age 0-1 year		Age 1-3 year		Age > 3 years		Total affection
	Number	%	Number	%	Number	%	
Umbilical hernia	127	7.7	53	5.6	5	0.3	185
Atresia ani	47	2.8	-	-	-	-	47
Knuckling of fetlock	18	1.1	-	-	-	-	18
Upward patellar fixation	-	-	23	2.6	74	4.1	97
Dermoid cyst	79	4.8	5	0.6	-	-	84
Navel ill	1116	67.4	-	-	-	-	1116
Gangrenous mastitis	-	-	-	-	72	4.0	72
Teat obstruction	-	-	109	12.3	256	14.3	365
Teat crack	-	-	47	5.3	286	16.0	333
Tail gangrene	-	-	13	1.5	40	2.2	53
Horn affections	-	-	34	3.9	99	5.5	133
Dislocation of hip	-	-	3	0.3	39	2.2	42
Foot diseases	31	1.9	153	17.3	306	17.1	490
Fracture	7	0.4	21	2.4	51	2.8	79
Myiasis	103	6.2	161	18.2	301	16.8	565
Urolithiasis	-	-	161	18.2	109	6.1	270
Arthritis	127	7.7	101	11.4	155	8.6	383
Total	1655	-	884	-	1793	-	4332

Highest occurrence of navel ill followed by myiasis, hoof affections and arthritis has been recorded in different age and seasons. Summer and rainy season are the time when the occurrence of navel ill is higher, and then myiasis. As the Pabna breed is the larger indigenous breed and the affection causing lameness including the arthritis and hoof disorders make the animal unable to graze in pasture and are confined in shed. It is impossible to move the animal to nearby veterinary hospital. So early diagnosis and surgical intervention in field condition are necessary for the recovery. It is concluded that early diagnosis and estimation of occurrence of the surgical affection is important for rapid surgical treatment. It could be an index for the salvage and development of cattle population in Pabna milk-shed area.

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