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# SURGICAL TREATMENT OF UMBILICAL HERNIA IN CALVES

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**Annotation:** This article presents information on the surgical treatment of calves affected by umbilical hernia, including preoperative and postoperative data, as well as their clinical signs. The study was conducted on six calves aged from one to eight months diagnosed with umbilical hernia, and their clinical signs were carefully monitored throughout the observation period.

**Keywords:** umbilical hernia, surgical treatment, calf, congenital, acquired, conservative, anatomical

**Introduction.** During the years of independence in our country, the industrialization of livestock farming, along with modern achievements in science and technology, has opened new opportunities for significantly improving animal husbandry. Today, in veterinary practice, the prevention of infectious and non-infectious diseases holds great importance. The outcomes of practical activities in livestock farming are determined by the advancements in veterinary science. To meet the population's demand for livestock products, all areas of animal husbandry, including increasing the number of cattle and combating their diseases, have been designated as priority tasks in our country.

Umbilical hernia among calves occurs in almost all countries worldwide and continues to cause economic losses to cattle farms. Numerous scientific studies have been conducted on the prevention, early diagnosis, and treatment of hernias in cattle, yielding positive results.

**Relevance of the Topic:** The umbilicus is a remnant of the connection between the fetus and the mother. Before birth, the umbilical vein serves as a source of oxygenated blood for the fetus. The paired umbilical arteries, which are branches of the internal iliac arteries, carry waste products (materials and blood) back to the placenta (Rings, 1995) [7].

In calves, the diagnosis of umbilical hernia, differentiation from other diseases, treatment, and postoperative care are of great importance. A hernia may occur when the internal organs protrude through a weak spot in the abdominal wall due to abnormal anatomical or accidental openings, in which case the organs cannot perform their physiological functions fully, and this condition is described as a hernia [1,6].

In calves, umbilical hernias are classified as follows: a) congenital pathology (herniae congenitae), which occurs due to improper development during the fetal period, resulting in the widening of anatomical openings (umbilicus, groin), and b) acquired (herniae acquisitae), caused by mechanical injury (umbilical atrophy or excessive physical strain on the muscles) [4,8]. Initially, the hernia forms a defect and a hernial sac, and later, due to physical pressure, internal organs protrude into the sac [5].

In newborn calves, remnants of the umbilical vessels (connecting the fetus and its mother) shrink until only small traces remain, which are eventually absorbed over time [3].

Most often, infection of the umbilicus or its remnants occurs during the neonatal period due to environmental exposure. Infections in the calf's body and environment (Arcanobacterium

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pyogenes, Staphylococcus, Streptococcus, and Escherichia coli) are among the causes leading to the development of umbilical hernia [4].

Surgical correction of umbilical hernia is mainly performed using two methods: herniorrhaphy and hernioplasty. Although open herniorrhaphy is the most common method in veterinary practice, recurrence may occur and can be observed within a year [9]. Currently, veterinary researchers are conducting studies aimed at improving the hernioplasty technique.

**Research Objective:** The main objective of our study is to investigate the occurrence of umbilical hernia in calves under the conditions of Karakalpakstan and to provide an anatomical and topographical rationale for its surgical treatment, including:

- modern approaches to surgical treatment;
- reducing the economic losses caused by umbilical hernia in calves under the care of farmers and the general population;
- developing measures to prevent the causes leading to umbilical hernia in calves.

**Materials and Methods.** The study was conducted at the Training and Experimental Clinic of the Department of Veterinary Medicine and Pharmacology, Nukus Branch of Samarkand State University of Veterinary Medicine, Livestock, and Biotechnology, as well as on calves with umbilical hernia in the “Moynoq Kelajagi Bunyodkorlari” livestock farm in the Amudaryo district, Khojayli region, and the “Sardorbek-Abrorjon” livestock farm in the Beshtom MFY, Amudaryo district, under the care of local residents. The study involved six calves aged from 1 to 8 months diagnosed with umbilical hernia. Clinical, surgical, anatomical-topographical, and comparative evaluation methods were used in the research.

**Results and Analysis of the Study.** During our study, six calves aged from 1 to 8 months were initially subjected to clinical examinations. The clinical signs observed in affected animals were consistent and included swelling in the umbilical region, growth retardation, a soft and slightly painful swelling upon palpation, and reduced appetite. Excessive feeding in calves led to enlargement of the hernial sac. Large hernial sacs often caused intestinal meteorism. In many calves with umbilical hernia, umbilical sepsis may develop, often in connection with defects in other organs [8].

In treating umbilical hernia, it is important to determine whether it is congenital or acquired. In congenital hernias, in some cases, internal organs (intestines) that adhered to the hernial sac during fetal development may require correction.

If the hernial ring is small, conservative treatment is applied. This includes massage to promote the development and strengthening of the abdominal and umbilical muscles. To prevent internal organs from descending into the hernial sac, a patch-shaped adhesive bandage is applied to the umbilical area. If this method is ineffective, surgical treatment is employed [2,3].

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**Table 1.**

| № | Groups | Number of Calves | Treatment Scheme |
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|---|---|---|---|---|
| 1. | First Experimental Group | 3 | Surgical Treatment | 1. Ceftriaxone 5 g antibiotic administered intramuscularly.<br>2. Apply 1:5000 furacilin to the sutured area.<br>3. Rub 5% iodine solution on the sutured area. |
| 2. | Second Experimental Group | 3 | Surgical Treatment | 1. Gentamicin 4 g antibiotic administered intramuscularly.<br>2. Apply 1:1000 betadine to the sutured area.<br>3. Rub 5% iodine solution on the sutured area. |

In the first experimental group, calves with umbilical hernia initially underwent surgical treatment, followed by a 5-day postoperative regimen that included intramuscular administration of 5 g of ceftriaxone (combined with 5 ml of novocaine) twice daily, application of 1:5000 furacilin to the sutured area once daily, and 5% iodine solution twice daily.

In the second experimental group, calves with umbilical hernia also received initial surgical treatment, followed by a 5-day postoperative regimen consisting of intramuscular administration of 4 g of gentamicin twice daily, application of 1:1000 betadine to the sutured area once daily, and 5% iodine solution twice daily.

The difference in recovery between the two groups was 2–3 days. In the first experimental group, sutures on the skin were removed after 13–14 days, whereas in the second group, sutures were removed after 11–12 days. These results clearly indicate that postoperative care is critically important for calves after surgical correction of umbilical hernia.

**Conclusions**

1. Calves affected by umbilical hernia lag in growth and development, so early treatment is recommended.
2. When treating umbilical hernia in calves, special attention should be paid to the size of the hernia and whether it is congenital or acquired.
3. Surgical treatment of calves with umbilical hernia is of great importance, and the timing of suture removal depends on postoperative care.

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