CONTRIBUTIONS TO THE STUDY OF
TRAUMATIC RETICULITIS
IN DAIRY COWS
(SUMMARY OF Ph. D THESIS)

SCIENTIFIC COORDINATOR
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Cluj- Napoca
2011
OBJECTIVES

The aim of this study was to evaluate the incidence and progression of the traumatic reticulitis, quickly and easily diagnostic possibilities but also find the most effective methods of prevention and treatment.

The traumatic reticulitis remains tehnopathy generally found in cattle due to malfunction of both the pasture management and the technological process of feeding the animals.

Economic losses are due to the decrease in milk production, weight loss, fertility, long-term development and evolution especially if the disease occurrence is highlighted too late and because of the treatment that must be applied. Moreover, in advanced cases of disease it can appear serious morphological changes in the internal organs, rendering them unfit for consumption.

For this purpose we have proposed that in an known area with tradition of rearing dairy cattle to perform a complete study on multiple issues that knows this disease and ultimately to recommend to practicing veterinarians a few useful tips for recovery the diseased specimens and prevention for other animals.
CHAPTER V
INCIDENCE OF THE TRAUMATIC RETICULITIS IN THE VETERINARY DISTRICT SANTĂU

MATERIAL AND METHODS

The study was conducted during four years (May 2006 - May 2009) in the district veterinary Santău, on a number of 1464 cattle of different ages, from Holstein, Brown Maramures, Romanian Spotted breeds and their crossbred.

Analysis of epidemiological investigation consisted of intrinsic and extrinsic factors involved in producing traumatic reticulitis, spatial and temporal distribution, retrospective and prospective study of risk factors.

PARTIAL RESULTS

During the four years of study, from the total of 1464 cattle taken in the survey, 56 (3.82%) had traumatic reticulitis symptoms. Depending on the shape evolution the 56 affected cattle were divided into three groups as follows (fig. 1):

- group A consisting of 29 (51.78%) cases that had symptoms of acute progressive form of traumatic reticulitis.
- group B consists of 12 (21.42%) cases that had symptoms of acute recurrent traumatic reticulitis.
- group C consists of 15 (26.78%) cases that had symptoms of chronic traumatic reticulitis.

![Fig. 1. Percentage distribution of traumatic reticulitis cases by evolutionary type](image)

Temporal distribution of cases of reticulitis

Temporal distribution of cases in the study is presented in table. 1 and the in fig. no. 2
The analysis of table no. 1 and Fig. no. 2 one can observe a trend of decreasing number of cases. So 2006 has seen the highest number of cases, 19 (33.92%) and for the coming years to gradually decrease the number of cases 16 (28.57%) in 2007, 14 (25.0%) in 2008 and seven (12.5%) in 2009. From the analysis of monthly distribution of cases of traumatic reticulitis can be seen that there are two peaks, one spring-summer with the highest value in May (17.85%) and the second in winter with the highest value in May-October (23.21%).

**Spatial distribution of reticulitis cases**

Depending on the localities where there have been cases the distribution is as follows: Santău 31 (55.35%), Sudurău 17 (30.35%) and in the area Chereuşa 8 (14.28%). Geographic distribution of localities is shown in fig. 3.
Evolution based on intrinsic and extrinsic factors

In the context of this thesis investigation we analyze the incidence depending on intrinsic factors: age, physiological state, state of maintenance. The issues are presented in tables 2, 3, 4.

<table>
<thead>
<tr>
<th>Incidence by age</th>
<th>Age category (years)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0-1</td>
<td>1-4</td>
</tr>
<tr>
<td>Number</td>
<td>0</td>
<td>33</td>
</tr>
<tr>
<td>%</td>
<td>0</td>
<td>66.07</td>
</tr>
</tbody>
</table>

By analyzing the distribution of cases by age, it is clear that they had the following aspect: 0 (0%) in the 0-1 year category, 37 (66.07%) from category 1 to 4 years, 15 (26.78 %) in category 4 to 8 years and 4 (7.14%) in the category of over 8 years. Analysis of incidence by race allows us to see that variability is quite pronounced.

According to this indicator can show the following effect, in descending order of sensitivity: category crosbreeds 26 (46.42%) cases, Romanian Spotted 17 (30.35%) cases, Maramurș Brown 11 (19.64%) and Holstein 7 (12.5%).
Incidence depending on the physiological state

<table>
<thead>
<tr>
<th>Physiological state</th>
<th>Gestation</th>
<th>After calving</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1-3 months</td>
<td>4-6 months</td>
<td>7-9 months</td>
</tr>
<tr>
<td>Number</td>
<td>26</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td>%</td>
<td>46,42</td>
<td>19,64</td>
<td>0</td>
</tr>
</tbody>
</table>

Depending on pregnancy most sensitive period is 1-3 months when we recorded the highest number of cases 26 (46.42%), followed by period of 4-6 months 11 (19.64%) cases and no cases during advanced pregnancy, between 7-9 months, when there was no case. After calving to breeding, there was an increased incidence of cases 19 (33.92%), probably uterine involution may be a contributing factor, which creates favorable conditions for the mobilization and removal of foreign bodies from the reticulum wall.

The incidence correlated with the maintenance status of animals

<table>
<thead>
<tr>
<th>Maintenance status of animals</th>
<th>Good</th>
<th>Bad</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>39</td>
<td>17</td>
</tr>
<tr>
<td>Percent</td>
<td>69,64</td>
<td>30,35</td>
</tr>
</tbody>
</table>

From the data analysis in relation to the maintenance condition of the animals it was found that the animals in good condition maintenance were more common diseases. Thus of the 56 cases, 39 (69.64%) were recorded from animals in good maintenance, and 17 (30.35%) in those with a poor state of maintenance.

The explanation could be that animals in good condition, consuming a larger quantity of food, there is the risk of swallowing a large number of foreign bodies causing traumatic reticulitis.
CHAPTER VI
SYMPTOMS IN TRAUMATIC RETICULITIS

MATERIAL AND METHODS

During the four years of the study, from the total of 1464 cattle examined, 56 (3.82%) had symptoms of traumatic reticulitis. The 56 cattle were divided into three groups according to the symptoms of the progressive form of the disease as follows:

- group A consisting of 29 (51.78%) cases that had symptoms of acute progressive form of traumatic reticulitis.
- group B consists of 12 (21.42%) cases that had symptoms of acute recurrent traumatic reticulitis.
- group C consists of 15 (26.78%) cases that had symptoms of chronic traumatic reticulitis.

PARTIAL RESULTS AND DISCUSSION

Traumatic reticulitis symptoms manifest themselves very diverse depending on the nature, form and length of foreign body and physiological condition or maintenance of animals.

Symptoms in acute traumatic evolutive reticulitis

Onset of disease was manifested by loss of appetite or anorexia, stopping rumination, bruxism dihydration, horripilation and groans particularly in exhalation. The animal express a sad facies, abdominal walls were in tension and the coastal type breathing was frequent and shallow (fig. 4).

Fig. 4. *The contraction of the abdominal wall and costal breathing appearance*
In some cases, even if the animal has the intention of feeding, he avoids it by withdrawing abruptly once it reaches the forage level. Head position is characteristic in that the animal takes the head and neck down, the front legs are removed to release the reticular region (fig. 5) and the breathing is shallow.

![Fig. 5. Remoteness of the limbs in the acute traumatic reticulitis](image)

In some animals we observed outside of the legs position a left olecranon removal from the chest wall (fig. 6).

![Fig. 6. Remoteness of olecranon from the chest region](image)

As a result of rectal thermometry, all animals showed hyperthermia suggesting the onset fever syndrome.
A very important issue that is found in this form of the disease is the decrease of milk production fact actually reported in the literature. Decreased milk production was found from the first day of symptoms and in some cases reached up to over 50% of the original.

The presence of these symptoms suggest an acute inflammatory process caused by foreign body migrating through the wall of the reticulum.

**Symptoms in acute traumatic recurrent reticulitis**

After the inspections we have revealed different intensities of colics manifested by anxiety, adoption of decubitus repeatedly and tense facies suggesting an acute pain (fig. 7). Sick animals' appetite was selective as they had an moody appetite, in some cases and other animals had anorexia. Reticular region pain was revealed by adopting a plain foreleg positions. In some animals, in addition to removing the legs we noticed a removal of olecranon from the rib wall (fig. 8).

![Cattle with acute relapsing traumatic reticulitis](image)

*Fig. 7. Cattle with acute relapsing traumatic reticulitis*
Cattle shows usually shaggy hair and are in a good, mediocre to bad state maintenance (fig. 9).

In our study we found traumatic triticulitis 2 days postpartum. This case presented severe digestive symptoms 5 months ago (symptoms treated symptomatically). This was due to perforation of the connective capsule that foreign body was isolated in caused by abdominal contractions necessary for expulsion of the fetus.
Symptoms in chronic traumatic reticulitis

Chronic form of traumatic reticulitis manifested by clinical symptoms usually light and rarely seen by carers.

The disease has progressed insidious, the appetite was lower, milk production decreased and the animals lost weight.

The history has shown that in a period of 2-4 weeks the mild digestive disorders have alternated with periods in which the animals showed no symptoms of disease.

Against this background, the maintenance condition worsened gradually, and the milk production decreased. The animals were in a poor state of maintenance (fig. 10.).

Fig. 10. Cattle with chronic traumatic reticulitis
CHAPTER VII

DIAGNOSIS OF TRAUMATIC RETICULITiS

MATERIAL AND METHODS

The study was conducted in the period May 2006 - May 2009 in the district are Santau on a range of 1464 bovines of different ages from breeds Holstein, Brown Maramures Romanian Spotted and their crossbreed. During the four years from a total of 1464 cattle, 56 (3.82%) had traumatic reticulitis symptoms. The 56 cattle were divided into three groups according to the evolving form of the disease as follows:

- group A consisting of 29 (51.78%) cases that had symptoms of acute progressive form of traumatic reticulitis.
- group B consists of 12 (21.42%) cases that had symptoms of acute recurrent traumatic reticulitis.
- group C consists of 15 (26.78%) cases that had symptoms of chronic traumatic reticulitis.

PARTIAL RESULTS

General clinic examination of the animals

Clinical examination was performed by inspection, auscultation and termometry. The inspection was carried out both remote and nearby. First we recorded rectal temperature, pulse rate and breathing for each animal. Then we performed a clinical examination assessing the maintenance condition of the animals, how he performs the movement, appetite, presence or absence of spontaneous groans and the presence or absence of fasciculations at ancona (tab. 5.).

<table>
<thead>
<tr>
<th>Studied parameter</th>
<th>Stări/Valori</th>
<th>Group A</th>
<th>Group B</th>
<th>Group C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance status</td>
<td>Good</td>
<td>20 animals</td>
<td>6 animals</td>
<td>0 animals</td>
</tr>
<tr>
<td></td>
<td>Mediocre</td>
<td>9 animals</td>
<td>6 animals</td>
<td>6 animals</td>
</tr>
<tr>
<td></td>
<td>Bad</td>
<td>0 animals</td>
<td>0 animals</td>
<td>9 animals</td>
</tr>
<tr>
<td>Temperature °C</td>
<td>37,5-38,4</td>
<td>0 animals</td>
<td>0 animals</td>
<td>0 animals</td>
</tr>
<tr>
<td></td>
<td>38,5-39,4</td>
<td>5 animals</td>
<td>5 animals</td>
<td>15 animals</td>
</tr>
<tr>
<td></td>
<td>&gt; 39,4</td>
<td>24 animals</td>
<td>7 animals</td>
<td>0 animals</td>
</tr>
<tr>
<td>Puls. /min</td>
<td>40-70</td>
<td>3 animals</td>
<td>2 animals</td>
<td>15 animals</td>
</tr>
<tr>
<td></td>
<td>71-90</td>
<td>21 animals</td>
<td>8 animals</td>
<td>0 animals</td>
</tr>
<tr>
<td></td>
<td>&gt;90</td>
<td>5 animals</td>
<td>2 animals</td>
<td>0 animals</td>
</tr>
</tbody>
</table>
### Tabel 5. continued

<table>
<thead>
<tr>
<th>Movement</th>
<th>10-30</th>
<th>31-40</th>
<th>&gt;40</th>
<th>8 animals</th>
<th>4 animals</th>
<th>0 animals</th>
<th>0 animals</th>
<th>0 animals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resp./ min</td>
<td>3 animals</td>
<td>26 animals</td>
<td>0 animals</td>
<td>0 animals</td>
<td>0 animals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Movement</td>
<td>Easy</td>
<td>7 animals</td>
<td>15 animals</td>
<td>3 animals</td>
<td>6 animals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Movement</td>
<td>Hard</td>
<td>6 animals</td>
<td>6 animals</td>
<td>0 animals</td>
<td>0 animals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Movement</td>
<td>Imobility</td>
<td>7 animals</td>
<td>3 animals</td>
<td>0 animals</td>
<td>0 animals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apetit</td>
<td>Prezent</td>
<td>5 animals</td>
<td>24 animals</td>
<td>8 animals</td>
<td>0 animals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apetit</td>
<td>Absent</td>
<td>4 animals</td>
<td>8 animals</td>
<td>0 animals</td>
<td>0 animals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Groving</td>
<td>Present</td>
<td>11 animals</td>
<td>6 animals</td>
<td>4 animals</td>
<td>4 animals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Groving</td>
<td>Absent</td>
<td>18 animals</td>
<td>6 animals</td>
<td>11 animals</td>
<td>11 animals</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Determination of milk production decrease

Another important aspect was to evaluate the quantitative decrease in milk production in all animals in group A given that the literature indicates that this is the first symptom that occurs in cases of acute traumatic reticulitis. Measurement of this parameter was carried out on four days, day "0" representing the day before the expression of acute traumatic reticulitis symptoms (table 6).

### Tabel 6.

Milk production/day of animals from group A before and after the disease appearance

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>24</td>
<td>14</td>
<td>12</td>
<td>13</td>
</tr>
<tr>
<td>A2</td>
<td>19</td>
<td>12</td>
<td>11</td>
<td>8</td>
</tr>
<tr>
<td>A3</td>
<td>23</td>
<td>11</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td>A4</td>
<td>31</td>
<td>23</td>
<td>21</td>
<td>15</td>
</tr>
<tr>
<td>A5</td>
<td>27</td>
<td>26</td>
<td>12</td>
<td>11</td>
</tr>
<tr>
<td>A6</td>
<td>42</td>
<td>27</td>
<td>24</td>
<td>23</td>
</tr>
<tr>
<td>A7</td>
<td>32</td>
<td>17</td>
<td>14</td>
<td>11</td>
</tr>
<tr>
<td>A8</td>
<td>23</td>
<td>15</td>
<td>16</td>
<td>17</td>
</tr>
<tr>
<td>A9</td>
<td>35</td>
<td>26</td>
<td>21</td>
<td>22</td>
</tr>
<tr>
<td>A10</td>
<td>28</td>
<td>21</td>
<td>15</td>
<td>16</td>
</tr>
<tr>
<td>A11</td>
<td>36</td>
<td>24</td>
<td>21</td>
<td>20</td>
</tr>
<tr>
<td>A12</td>
<td>34</td>
<td>28</td>
<td>21</td>
<td>19</td>
</tr>
<tr>
<td>A13</td>
<td>46</td>
<td>34</td>
<td>23</td>
<td>19</td>
</tr>
<tr>
<td>A14</td>
<td>24</td>
<td>22</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td>A15</td>
<td>38</td>
<td>22</td>
<td>23</td>
<td>19</td>
</tr>
<tr>
<td>A16</td>
<td>25</td>
<td>19</td>
<td>14</td>
<td>14</td>
</tr>
</tbody>
</table>
It is noted that milk production decreased in all animals from group A starting from the first day that symptoms of acute traumatic reticulitis appeared. Decreased milk production on the first day ranged between 9.33% and 52.7%. Decreased milk production was evolving constantly during the next two days, on the third day with values between 37.03% and 65.62%.

**External examination of the reticulum**

Physical external examination of the reticulum used general methods of examination: inspection, palpation, percussion, auscultation, and special methods to obtain data of great importance in the diagnosis of traumatic reticulitis.

**Direct inspection**

Direct inspection of reticulum does not provide data special because its anatomical position is practically inaccessible to a good clinical observations.

After the direct inspection of the reticulum changes were not observed in any animal studied.

**Reticulum palpation**

Palpation was deep one with a fist, pressing the costo-xifoidian angle in the cranial direction, directly on the reticulum.

As a result of these manipulations have responded positively, 29 (100%) of the animals in group A, 12 (100%) animals in group B and 5 (33.33%) animals in group C (fig. 11).
Reticulum percussion

Direct percussion was performed for palpation purpose to highlight the sensitivity of the reticulum, the peritoneum or adjacent organs.

At 27 (93.10%) of animals in group A, 10 (83.33%) of group B and 3 animals (20%) animals in group C was obtained on the xifoidian area a "box" sound, a special resonance at this level due to the formation of a pneumoperitoneum and abdominal muscle contraction (fig. 12).
**Reticulum ascultation**

In group A, after reticulum ascultation, 24 animals (72.41%) showed hypotonia and 5 animals (27.59%) showed atonia of these compartment.

In group B, 8 animals (66.66%) had hypotonia, 2 (16.66%) had atonia and 2 (16.66) hypertonia of these compartment.

In group C, 10 animals (66.66%) had hypertonia, 4 animals (26.66%) had hypotonia and one (6.66%) hat atonia of the reticulum.

**Special methods of diagnosis for reticulitis**

**Diagnosis of traumatic reticulitis by pressure tests with pain expressing**

*Stick test.* The test consisted in compression of the ventral abdominal region, from xifoidian appendix to navel with wood bars 1.80 to 2 m long with a round profile, disposed across the midline of the abdomen.

For group A, 27 animals (93.1%) responded positively to that in group B, 10 (83.33%) responded positively to this test while in group C, three animals (20%) responded positively.

*Inclined plane test.* For this test, the suspect animals were forced down an inclined plane with a length of about 25 meters. At this test have responded positively 25 animals (86.2%) in group A, 9 animals (75%) in group B (46.66%) and 7 animals in group C.

*The strap test.* This test was performed by moderate tightening a strap on the xifoidian appendix region. At this test have responded positively all animals in group A, all animals in group B and 11 animals (73.33%) of the group.

**Traumatic Reticulitis diagnosis by test based on the evidence of viscerocutaneous reflexes**

*Folded withers skin test.* For this test we folded the skin from the withers in all animals studied.

At this test have responded positively to 28 animals (96.55%) from group A, 11 animals (91.66%) in group B and 10 animals (66.66%) in group C.

*Withers combined test (Falke test).* This test is a combination of the inclined plane test and folding withers skin test.

At this test all animals reacted positively in group A, 11 animals (91.66%) in group B and 8 animals (53.33%) in group C.
Paraclinical diagnosis of traumatic reticulitis

Rumenal fluid examination

Rumen fluid was harvested four hours before rumenotomy using a probe that was adapted to a syringe. Immediately after harvest, we measured the pH of the samples with pH-meter portable "Vario".

Comparing the values obtained was made with reference values (table 7).

After recording pH - we analyzed the viability, the number of infusors per milliliter, the percentage of acetic acid, butyric acid percentage and the percentage of lactic acid (tab. 8).

Tabel 7.

<table>
<thead>
<tr>
<th>Investigated parameter</th>
<th>pH-ul</th>
<th>Infuz. Nr./ml</th>
<th>Acetic acid %</th>
<th>Butyric acid %</th>
<th>Lactic acid %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal value</td>
<td>6-6,5</td>
<td>40x10^4 – 70x10^4</td>
<td>60-65</td>
<td>15</td>
<td>10-40</td>
</tr>
</tbody>
</table>

Tabel 8.

<table>
<thead>
<tr>
<th>Studied parameter</th>
<th>Group A</th>
<th>Group B</th>
<th>Group C</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>6,56 ± 1,15</td>
<td>6,71 ± 0,41</td>
<td>7,79 ± 0,64</td>
</tr>
<tr>
<td>Viability infusorians</td>
<td>11 low</td>
<td>10 low</td>
<td>3 low</td>
</tr>
<tr>
<td>Infuz. nr./ml</td>
<td>94100 ± 80900</td>
<td>91400 ± 59140</td>
<td>58025 ± 47575</td>
</tr>
<tr>
<td>Acetic acid %</td>
<td>15,5 ± 8,5</td>
<td>36,5 ± 10,5</td>
<td>41,5 ± 8,5</td>
</tr>
<tr>
<td>Butyric Acid %</td>
<td>21,5 ± 13,5</td>
<td>16,5 ± 7,5</td>
<td>29 ± 18</td>
</tr>
<tr>
<td>Lactic acid %</td>
<td>63,5 ± 15,5</td>
<td>38,5 ± 18,5</td>
<td>22 ± 16</td>
</tr>
</tbody>
</table>

Examenul hematologic

Blood was collected in sterile vacutainers from the jugular vein in the morning prior to surgery.

Blood profile was done within two hours in the laboratory DSV Satu-Mare.

Hematological profile was performed on groups, and was focused on verifying the CBC, leucogram and platelets. (tab. 9 - 12).
### Tabelul 9

**Leucograma**

<table>
<thead>
<tr>
<th>Studied parameter</th>
<th>Norm. value</th>
<th>Group A</th>
<th>Group B</th>
<th>Group C</th>
</tr>
</thead>
<tbody>
<tr>
<td>WBC ($\times 10^3/\mu l$)</td>
<td>4 - 12</td>
<td>17,12 ± 4,72</td>
<td>17,55 ± 4,01</td>
<td>10,15 ± 3,35</td>
</tr>
<tr>
<td>Neutrophils (%)</td>
<td>15 - 45</td>
<td>58,85 ± 6,25</td>
<td>52,4 ± 2,5</td>
<td>31,75 ± 5,85</td>
</tr>
<tr>
<td>Lymphocytes (%)</td>
<td>45 - 75</td>
<td>37,2 ± 6,1</td>
<td>42,3 ± 2,5</td>
<td>54 ± 6,8</td>
</tr>
<tr>
<td>Monocites (%)</td>
<td>2 - 7</td>
<td>3,2 ± 2</td>
<td>3,75 ± 1,75</td>
<td>8,65 ± 1,25</td>
</tr>
<tr>
<td>Eosinophils (%)</td>
<td>2 - 12</td>
<td>1,1 ± 0,5</td>
<td>2,5 ± 1,4</td>
<td>2,75 ± 0,95</td>
</tr>
<tr>
<td>Basophils (%)</td>
<td>0 - 2</td>
<td>0,8 ± 0,5</td>
<td>0,65 ± 0,25</td>
<td>0,55 ± 0,35</td>
</tr>
</tbody>
</table>

### Tabelul 10

**CBC**

<table>
<thead>
<tr>
<th>Studied parameter</th>
<th>Norm. value</th>
<th>Group A</th>
<th>Group B</th>
<th>Group C</th>
</tr>
</thead>
<tbody>
<tr>
<td>RBC ($\times 10^6/\mu l$)</td>
<td>5-10</td>
<td>7,92 ± 2,19</td>
<td>7,68 ± 1,77</td>
<td>4,12 ± 1,01</td>
</tr>
<tr>
<td>HGB (g/dl)</td>
<td>8-15</td>
<td>11,27 ± 2,93</td>
<td>8,54 ± 0,67</td>
<td>6,61 ± 1,27</td>
</tr>
<tr>
<td>HCT (%)</td>
<td>24-46</td>
<td>34,4 ± 8,63</td>
<td>29,18 ± 9,88</td>
<td>46,22 ± 5</td>
</tr>
<tr>
<td>VEM (fL)</td>
<td>40-60</td>
<td>47,93 ± 6,38</td>
<td>43,88 ± 2,56</td>
<td>40,96 ± 1,71</td>
</tr>
<tr>
<td>HEM (pg)</td>
<td>11-17</td>
<td>15,07 ± 3,84</td>
<td>12,89 ± 1,5</td>
<td>15,24 ± 1,68</td>
</tr>
<tr>
<td>CHEM (g/dl)</td>
<td>30-36</td>
<td>39,83 ± 6,31</td>
<td>33,41 ± 1,95</td>
<td>34,27 ± 2,16</td>
</tr>
<tr>
<td>RDW-SD (fL)</td>
<td>20-35</td>
<td>20,93 ± 2,61</td>
<td>18,43 ± 0,99</td>
<td>18,33 ± 1,1</td>
</tr>
</tbody>
</table>

### Tabelul 11

**Platelets, fibrinogen and T Quick for A lot**

<table>
<thead>
<tr>
<th>Studied parameter</th>
<th>Norm. value</th>
<th>Group A</th>
<th>Group B</th>
<th>Group C</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLT ($\times 10^3/\mu l$)</td>
<td>100-800</td>
<td>509 ± 273</td>
<td>459 ± 103,5</td>
<td>422 ± 77,5</td>
</tr>
<tr>
<td>MPV (fL)</td>
<td>3-7</td>
<td>6,45 ± 0,45</td>
<td>5,75 ± 0,55</td>
<td>5,4 ± 0,4</td>
</tr>
<tr>
<td>Fibrinogen (mg/dl)</td>
<td>100-600</td>
<td>749 ± 95,5</td>
<td>760 ± 178,5</td>
<td>1088,5 ± 154,4</td>
</tr>
<tr>
<td>T. Quick (s)</td>
<td>10-27</td>
<td>30,6 ± 2,5</td>
<td>25,7 ± 4,5</td>
<td>20,34 ± 3,15</td>
</tr>
</tbody>
</table>

### Tabelul 12

**Blood biochemical parameters in group A**

<table>
<thead>
<tr>
<th>Studied parameter</th>
<th>Norm. value</th>
<th>Group A</th>
<th>Group B</th>
<th>Group C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glicemia (mg/dl)</td>
<td>35-55</td>
<td>42,5 ± 11,5</td>
<td>43 ± 8</td>
<td>34 ± 3</td>
</tr>
<tr>
<td>Calcemia (mg/dl)</td>
<td>14-40</td>
<td>34,4 ± 11,5</td>
<td>29,5 ± 9,4</td>
<td>20,45 ± 3,35</td>
</tr>
<tr>
<td>Protein (g / l)</td>
<td>65-75</td>
<td>67,6 ± 3,1</td>
<td>72,35 ± 4,95</td>
<td>104,5 ± 16,8</td>
</tr>
<tr>
<td>Cholesterol (mg / dl)</td>
<td>186-286</td>
<td>315 ± 97</td>
<td>245 ± 108</td>
<td>139 ± 72,5</td>
</tr>
<tr>
<td>Total bilirubin (µmol/l)</td>
<td>0,17-8,03</td>
<td>3,65 ± 2,75</td>
<td>3,5 ± 1,9</td>
<td>3,25 ± 2,45</td>
</tr>
<tr>
<td>Creatinine (µmol/l)</td>
<td>35-280</td>
<td>59,85 ± 17,25</td>
<td>142,3 ± 53,1</td>
<td>229,7 ± 34,9</td>
</tr>
</tbody>
</table>
Radiological examination

Radiography can provide very valuable data on the position, shape and size of foreign bodies from the reticulum.

Radiography was performed one hour before each surgery to determine the presence and direction of radiopaque foreign bodies perforating or nonperforating from the reticulum level.

Following radiography all radiopaque foreign bodies could be identified and we could determine their direction and whether they are or are not perforating.

For group A, 32 of 47 foreign bodies were perforating while 13 were free at the reticulum level.

For group B, of the 23 radiopaque foreign bodies, 16 were perforating while 7 were free at the network level.

For group C, of 53 radiopaque bodies, 32 were perforating while 21 were free at the reticulum level.

Examination with feroscope

Animals examination using the feroscope (Ferroskop 3) was performed on each group in a room with no noise and good lighting.

After the exam with feroscope in all animals studied were identified metallic foreign bodies at the reticular level. The drawback of this method was that, based only on her, we could not determine the number of metal bodies or their direction of travel.

Ultrasound examination at the reticulum

Examination of the perireticular area was performed with an 5 MHz probe between ribs 5 and 6 for guiding the probe in such a way as to be covered throughout the area.

Following echography, both in animals from group A and those in group B we didn’t found changes and the bodies were found very hard.

Instead irregularly shaped bodies such as stones and glass were easily identified by ultrasonography if they were more than 0.5 cm in diameter.

In the animals from group C we revealed abscesses of different dimensions.

PARTIAL DISCUSSIONS

After the study carried out in the district Santau, from total of 1464 cattle studied, 56 (3.82%) had traumatic reticulitis. Disease is in a much lower percentage than that set by Whitlock RH (1980) which establishes a diagnosis of traumatic reticulitis in 21% of all animals studied by him.

In terms of clinical signs, they are confirming data from literature indicating that in the chronic form of the disease occurs a extreme weakening of the animal which involves a serious prognosis the animal can’t be reintroduced into the productive circuit
because it is not financial profitable.(Maddy K. T., 1954; Mircean M., 2007 ; Muste A., 2009).

In group A animals, decreased milk production in the first day ranged between 9.33% and 52.7% . Decreased milk production was a constant evolution over the next two days, the third day with values ranging between 37.03% and 65.62%.

Direct inspection of the reticulum does not offer any diagnostic tool and is no change in the projection of the reticulum.

Direct palpation of the reticulum is a very fair trial in acute recurrent and progressive form when is positive in 100% of cases and less accurate in chronic cases when it is positive in approximately 33% of cases. Very weak response to this test in the chronic form of disease is due to encapsulation of vulnerable body, when it no longer be moved through deep palpation.

As regards indirect percussion, it has a maximum sensitivity in acute progressive form of the disease when there were about 93% of positive responses against 20% recorded in the chronic form.

Decreased sensitivity test in chronic cases is due on the one hand limit the infectious process and on the other hand the disappearance of abdominal contraction.

On auscultation there was a reduction of reticulum activity in approximately 72% of animals that showed acute progressive form of the disease and a hypotony in about 28 of the animals. For group B, atony was observed in approximately 17% of cases, hypotony in approximately 66% of cases while hypertonia was identified in approximately 17% of cases. In group C, reticulum atony was found in 7% of cases, hypotony in 27%, while hypertony in approximately 66% of cases. This increase of reticular hypertonia becomes permanent as the disease is caused by changes in rumen pH with the appearance of indigestion on the one hand and secondly because of toxins that accumulate with the propagation of bacteria resistant to an acid pH.

In the sample stick, best results were obtained in the case of acute disease when responded positively about 91% of the animals in group A, and the sensitivity is lower in the chronic disease.

Inclined plane test was less sensitive than stick test in the acute form when they reacted positively in 86% of cases for group A and 75% for group B. In group C positive results were recorded in 46% of cases. This test is not reliable because it relies heavily on the degree of fullness of reticulum.

Strap test is a very fair test because it applies a constant force on the reticulum thus eliminating false negatives response. Not all animals in group C responded positively to this test probably due to a good encapsulation of foreign body, or possibly because the strap does not exercise direct pressure on the vulnerable body.

Regarding the results of diagnostic tests based on viscero-cutaneous reflexes it was shown that they are very accurate for acute forms of illness and lose their fidelity with a chronic disease. However, reduced sensitivity of this test is not as drastic in chronic cases and it retain the loyalty in a fairly large percentage (53-66%). Of these tests, the less accurate is the Solomatin test whose accuracy does not exceed 35% in any of the groups studied.
After the exam of the rumen content we observed marked differences between groups regarding pH the number of infusorians and their viability as well as the acid concentration found in rumen. In group A, the pH was between 5.42 and 7.71 with a mean value lying somewhere in 6.5.

The pH value indicates that the inflammatory exudate has not yet produced a decrease in the value and that he is still around normal. Regarding the rumen infusoria was found a decrease both in their number and viability of their low pH probably due to slight changes in the rumen. Regarding the concentration of fatty acids in rumen was a significant increase in lactic acid which ranged between 55% and 71%. This confirms that at low pH there is an intense multiplication of bacteria that are producing lactic acid that increase the concentration the rumenal concentration. Butyric acid concentration was within normal limits but there was a decrease in the concentration of acetic acid that has come down to between 8% and 24%.

In group B, the pH drops further due to increase of acid concentration and the animal has subacute acidosis. Infusorians number also decreases and viability is also mostly very low.

Regarding the concentration of fatty acids from the rumen level, it was found the same increase in the amount of lactic acid but its values have not exceeded 57%. In contrast, the amount of acetic acid and butyric tended to approach its normal limits.

In group C, there was an increase in the pH value of 7.15 units with the dramatic fall in the number of infusors. Although infusoria appear in very small numbers they have a normal viability while accommodating to an increased pH. Regarding the concentration of fatty acids from the rumen level, there was a significant increase in butyric acid concentration reached 47% in value. Concomitant with this, the other acids decreased below normal.

Following hematology, leucograma in group A showed an increase in neutrophils and lymphocytes which is typical for acute inflammation. In group B, neutrophils show a slight decrease compared to group A, but still above the normal. In group C, the neutrophil count reached normal levels, and also that of lymphocytes but has instead increased the number of monocytes, which is typical chronicity of inflammatory process.

Regarding blood count, in group A, we found a slight decrease in all hematological parameters. In group B, this decrease of hematological parameters is increasing and in group C they fall far below normal. A difference is found in group C and is characterized by increase beyond normal of the hematocrit. This is due to a hemoconcentration due to desiccation. Decrease in red blood cells in all animals from these three groups is not due to an red blood cells deth but because the inability of bone marrow to produce the required amount.

In terms of blood platelets is a slight decrease in their number as the disease becomes permanent. On the other hand, greatly increases the level of fibrinogen in all groups studied. Thus, if in the groups A and B, he has values between 582 and 934 mg / dl in group C the value exceeds 1,000 mg / dl. Drastically increase the amount of fibrinogen suggest an inflammatory process spread in the body. This increase in fibrinogen is associated with increasing value of parameter T Quick.
Among the biochemical parameters investigated, the highest growth is recorded in total proteins in all groups studied, actually normal fact since plasma fibrinogen has a value so high.

Glucose, although within normal limits both in group A and in group B, decreased in group C. This is explained by the fact that after the chronicity of the disease, the body's ability to maintain blood sugar within normal limits is hampered on the one hand by slowing gluconeogenesis and glycogenolysis and on the other hand, the appetite capricious and selective posed by these patients.

The total bilirubin is within normal limits which confirms that the low number of red blood cells is not due to a massive depletion of red blood cells but because of low production.

As a result of radiological examination we have identified all existing radiopaque foreign bodies. We could also determine the number of foreign bodies and whether or not they are perforating.

Examination of animals with feroscope although very effective in identifying metallic foreign bodies is not providing information on their number nor their direction of implantation. Also from the eroscope examination can not determine whether the bodies are perforated or only at reticular level.

Ultrasound though very effective in identifying abscesses, the pericarditis and pleuritis can not identify foreign bodies, especially if they are represented by wire and nails. The ultrasound can identify foreign bodies like stones that are free in the reticulum.
CHAPTER VIII
PREVENTION AND TREATMENT OF TRAUMATIC RETICULITEI

MATERIAL AND METHODS

The study was conducted in the period May 2006 - May 2009 in the district area Santau on a range of 1464 bovines of different ages from breeds Holstein, Brown Maramures Romanian Spotted and their crossbred.

During the four years from a total of 1464 cattle, 56 (3.82%) had traumatic reticulitis symptoms.

During the four years that we conducted the study, in addition to identifying and treating the cases of traumatic reticulitis, a special place had the prevention of this disease.

PARTIAL RESULTS

Prevention of traumatic reticulitis

Prevention of traumatic reticulitis was pronged in three ways. First we carried out training of farmers on the storage of materials such as nails and sharp metal wires after making repairs to the animal shelter.

A second method was to prevent traumatic reticulitis by intrareticular application of magnets that are designed to capture any possible metallic foreign bodies. This method of prevention we have applied it in the first two years of the study because results were not satisfactory. After applying magnets, most animals have digestive symptoms with progressive weakness and decreased production.

Thirdly we performed regular exams with feroscope in all adult cattle, while shares of tuberculin or their owners.

Of the 1408 cases examined without symptoms of traumatic reticulitis were identified metallic foreign bodies in 983 animals which is a very high percentage.

Animals which responded positively to the feroscope exams have been subject to manipulations to recover the bodies with a magnetic probe.

In 945 animals, extracting metallic foreign bodies was done in the first try and in 29 animals this was done in the second try.

Nine of the animals that responded positively to the feroscope exam were subjected to diets for 48 hours because of metallic foreign bodies could not be removed after the second attempt. After diet, we managed to extract foreign bodies.

Conservative treatment of traumatic reticulitis

Because the extraction of magnetic foreign bodies with the probe had very good results in animals that were not showing symptoms of reticulitis but possessed metal bodies in the reticulum we tried to apply it as a conservative method of treatment for all animals showing symptoms of acute traumatic reticulitis evolutive and recurrent.
The 41 cattle that fit into these two categories were initially subjected to a diet for 48 hours for full evacuation of reticular cavity. After that, we tried to extract metallic foreign bodies with magnetic probe.

From all 41 animals we have managed to extract foreign metal bodies but only in one of those we extracted them all fact confirmed by that the animal's general condition improved.

The remaining 40 animals in groups A and B were treated conservatively for 14 days.

Conservative treatment of sick animals began by making a food diet for two days. After that, feed ration for the next 12 days was reduced by half and improved in terms of quality. All the animals were placed on slopes so that the anterior legs are 20 cm higher than the hindquarters. Along with these procedures we administrated antibiotics for 7 days with broad-spectrum antibiotics.

On the day 5 and 10 of the therapeutic protocol we introduced intraabdominal in each animal, two liters of oxygen. Along with this procedure we injected intra-abdominal alfachemotripsin (20 ml diluted in 200 ml of warm saline) to prevent formation of any adhesions.

Following these therapeutic protocol we obtained recoveries in 28 animals while in 12 the overall condition has not improved and were subjected to surgery.

**Surgical treatment in traumatic reticulitis**

Surgery was performed on a total of 27 animals (15 of group C, and 12 animals that did not respond to conservative treatment).

Surgery was performed by rumenotomy.

**Animals prepare for surgery**

The animals were subjected to a diet for 48 hours before surgery.

The tranquilization of animals was performed with xylazine (0.05 mg / kc) and central analgesia was performed with butorphanol (25-30mg / animal) administration intramuscularly or intravenously in the coccigiene veins (2.60).

After neuroplegia was instaled , we performed paralombar anesthesia in intervertebral spaces 2, 3, 4, with procaine 2% (5-8 ml in each point).

**Surgical technique**

a) **Laparotomy**

Laparotomy was performed on the left side 3-4 cm behind the last rib and parallel to it, by cutting through the skin over a length of 20-25 cm (fig. 13).
After skin incision we fixed the wound edges with forceps which two assistants removed by easy traction in order to cut other anatomical layers (fig. 14)

**Fig. 13. Skin incision**

**Fig. 14. Highlighting the subcutaneous layer**
We got the peritoneum in its upper portion with a haemostatic forceps and, at the end of exhalation we made a buttonhole at his level. After that, making sure not to puncture the rumen, we extended incision of peritoneum to the latch portion of the operative wound showing the rumen (fig. 15.).

Fig. 15. *Highlighting the rumen*

**b) Exploration of abdominal cavity**

Exploration of the abdominal cavity is mandatory because it provides the possibility of noticing any adhesions, peritoneal, spleen or liver abscess or peritonitis.

In four cattle were identified abscesses localized on reticular wall (3 abscesses) and on the visceral face of the diaphragm (two abscesses) in close proximity to the reticulum and we performed surgical drainage.

**c) Externalizing the rumen**

Rumen exteriorization was done in order to prevent overflowing rumen contents into the abdominal cavity and was achieved by light traction with arms.

After it was brought into the surgical wound was secured with the help of oval forceps to avoid crushing tissues and was isolated with sterile fields around (fig. 16.).
**d) Rumen incision**

The rumen opening was made in the middle portion of it through an incision of 15-20 cm long, to allow passage of the hand, forearm and arm surgeon (fig. 17).
After completion of the haemostasis, with two oval forceps we got the rumen wound lips and we reflected them over the sidewall showing the contents of the rumen.

If the rumen content was abundant and the hand of surgeon was difficult to penetrate inside the reticulum we performed a partial clearing.

After being partially emptied we examined carefully the reticulum identifying and then removing all foreign corpus (fig. 18) including magnets (the magnets that were introduced in to the reticulum).

![Fig. 18. Foreign bodies extracted from reticulum](image)

e) **Rumen closure**

Rumen suture was made from the bottom up to ensure proper sealing of the incision. First we applied a perforating suture that interested the entire wall of the rumen with nonresorbable suture.

Then we applied a choke-type suture Lambert wih using synthetic polifilamentose absorbable sutures.

f) **Abdominal wall closure**

Peritoneum and muscle layer was sutured in separated points with absorbable suture (fig. 19).

The second layer of muscles was sutured also in separate points with resorbable suture avoiding the formation of pockets where could accumulate exudate (fig. 20).

Skin suture was performed in separate points with thick silk from top to bottom to leave room for the drain at the bottom.
Postoperative treatment

Treatment consisted in preventing postoperative peritonitis with retard antibiotics (PenStrep, Duphapen) intramuscularly for 3 days. To prevent adhesions we performed intraperitoneal administration of alfachemotripsin every three days.
PARTIAL DISCUSSIONS

Prophylaxis by applying magnets intrareticular was modest given the development of the overall condition of animals after application.

A very effective method of prevention of traumatic reticulitei was regularly examining the animals with feroscope and extracting metallic foreign bodies early before disease symptoms appears.

Regarding the conservative treatment of traumatic reticulitis we started by extracting active metallic bodies with magnetic probe in all cows that showed symptoms of acute traumatic evolutive reticulatis and acute recurent traumatic reticulitis.

Recording a percentage of only 3% of healing using this method of extracting foreign bodies was based on the fact that most foreign metallic bodies were inserted in the reticulum wall.

Conservative treatment we applied on a total of 40 animals has been successful in 70% of cases, 30% of them requiring surgery. The results are good compared with data found in the literature employing the methods of conservative success rate between 30% and 60%.

At the end of the study, of a total of 27 animals that have undergone surgery by rumenotomy, 25 animals were declared healthy.

The difference was a single failure from one animal in which the foreign body passed through the wall and could no longer be identified at the time (fig. 21).

![Fig. 21. Percentage distribution of surgical examination results](image)

The second case was directed to the slaughter, because after laparatomy we have highlighted serious morphological changes.
The results described above confirm the importance of surgical treatment for traumatic reticulitis, following its application is possible to extract all penetrating foreign bodies and examine the entire abdominal cavity.
CHAPTER IX
EVALUATION OF EXTRACT FOREIGN BODY

MATERIAL AND METHODS

During the four years of the survey we inventoried all foreign bodies extracted from cattle on the range of Santau district.

Extraction of foreign bodies was made following regularly feroscope control in all animals that responded positively to this test, after rumenotomy surgery (27 cases) and from 8 reticulum from slaughtered cattle for various reasons not related to ostooperative evolution.

PARTIAL RESULTS AND DISCUSSIONS

a) Extraction of foreign bodies with magnetic probe

From the 983 animals we extracted a number of 2356 metallic foreign body (wire and nails) of different shapes and sizes that we divided into three categories according to length, body with length of up to 5 cm, body with length between 5 and 7 cm and body with length of over 7 cm (tab. 13).

<table>
<thead>
<tr>
<th>Nature of foreign body</th>
<th>Length &lt;5 cm</th>
<th>Length 5-7 cm</th>
<th>Length &gt; 7 cm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wire</td>
<td>1432</td>
<td>78</td>
<td>6</td>
</tr>
<tr>
<td>Nails</td>
<td>782</td>
<td>56</td>
<td>2</td>
</tr>
</tbody>
</table>

b) Extraction of foreign bodies by rumenotomy

Foreign bodies were represented by metal wire, nails and metal sheets of different shapes and sizes. In four cases, we identified plastics parts represented by nylon.

From the 27 animals undergoing surgery we extracted 167 metallic foreign bodies. Of these, 32 (19%) were represented by active foreign bodies that perforate the reticular wall in varying degrees while 135 (81%) were inactive corpora, free in the cavity.

Foreign nonmetallic bodies (fig. 14) present at the reticular level and extracted from rumenotomy in a number of 123 were being represented mainly by small stones and glass (fig. 22).
Table 14

<table>
<thead>
<tr>
<th>Nature of foreign body</th>
<th>Length &lt;5 cm</th>
<th>Length 5-7 cm</th>
<th>Length &gt; 7 cm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stones</td>
<td>68</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Glass</td>
<td>32</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Rope</td>
<td>0</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td>Plastic</td>
<td>8</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Fig. 22. Foreign bodies represented by stones

c) Harvesting foreign bodies from slaughtered animals

After careful examination of the reticular wall, we have highlighted, in three cases, the presence of metallic foreign bodies fixed in to the mucosa. We note that the animals before slaughter had no symptoms of traumatic reticulitis, the slaughter being done for other reasons.

Foreign bodies were classified according to their nature in metal foreign bodies and non-metallic foreign bodies. Metallic foreign bodies were 15 and were represented by nails, wire and metal sheet (tab. 15) while non-metallic foreign bodies were 47 and were represented by stones, glass, plastic and rope (tab. 16.).
### Table 15

<table>
<thead>
<tr>
<th>Nature of foreign body</th>
<th>Length &lt;5 cm</th>
<th>Length 5-7 cm</th>
<th>Length &gt; 7 cm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nails</td>
<td>5</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Wire</td>
<td>2</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Metal sheet</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

### Table 16

<table>
<thead>
<tr>
<th>Nature of foreign body</th>
<th>Length &lt; 5 cm</th>
<th>Length 5-7 cm</th>
<th>Length &gt; 7 cm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stones</td>
<td>30</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Glass</td>
<td>9</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Plastic</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Rope</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

The presence of foreign bodies in animals that have suffered surgery by rumenotomy means that their intake was achieved postoperatively. Although the number of foreign bodies was small, they have caused damage that could lead to symptoms of traumatic reticulitis.
CHAPTER X
MORPHOPATHOLOGICAL CHANGES

MATERIAL AND METHODS

For histological examination, were collected samples (pregastric compartments, tissue biopsies of the rumen and reticulum) from cattle after rumenotomy 8 and killed in the slaughter points. Histological preparations were made at the discipline of Pathology, Faculty of Veterinary Medicine, Cluj-Napoca.

PARTIAL RESULTS AND DISCUSSIONS

For all examined prestomacs, we revealed a rumenal postoperative scar (fig. 23). Postoperative scars were composed of large quantities of tissue and were characterized by the absence of mucosa at their level.

![Image of rumen scar post-operatively](image-url)

**Fig. 23. The appearance of rumen scar post-operatively.**  
*BR Cattle, 11 years, F.*

Also after histopathological exam we highlighted the lack of epithelium on the rumenal scar (fig. 24.).

In figure 25 (black box) it can be revealed granulation tissue which is a initially stage with proliferating fibroblasts, neoformation vessels and intense inflammatory infiltrate with lymphocytes, macrophages, plasma cells and rare eosinophils. Towards the periphery of the central area (blue box above) can be seen fibrocite fibrous connective tissue, collagen fibers and reduced inflammatory infiltrate.
In figure 26 and figure 27 we see a more advanced healing process, characterized by the appearance of granulation tissue, fibroblast proliferation, collagen fibers and rare few ships neoformation, and rare mononuclear inflammatory infiltrate with eosinophils.
Fig. 26. Reticular healing. HE x 200. BR Cattle, 11 years, F.

Fig. 27. Reticular healing. HE x 200. BR Cattle, 11 years, F.
GENERAL CONCLUSIONS

- Epidemiological study was conducted in 2006-2009, in the veterinary district Santau, on a number of 1464 cattle belonging to milk farms cows and households, being diagnosed with traumatic reticulitis 56 (3.82%) animals of the total herd examined.

- The analysis of age distribution of cases, it appears that the disease had the following effect: 0 (0%) 0-1 year category, 37 (66.07%) from category 1 to 4 years, 15 (26, 78%) in category 4 to 8 years and 4 (7.14%) in the category of over 8 years.

- In relation to the maintenance condition of the animals was found that the animals in a good maintenance condition were more common disease. Thus of the 56 cases, 39 (69.64%) were recorded from animals in good maintenance, and 17 (30.35%) in those with a poor state of maintenance.

- In the evolutive form of traumatic reticulitis all constants are increased beyond normal physiological running through hyperthermia, tachycardia and tachypnea while in the recurrent form the increase a is not so hight.

- Decreased milk production in the evolutive form of acute traumatic reticulitis in all animals from the first day of clinical findings.

- Recurrent acute traumatic reticulitis may occur within the first few days postpartum due to realising of thr foreign body, the result of abdominal contractions necessary for expulsion of the fetus and has is characteristic clinical signs of other digestive diseases and are necessary complex investigations for a diagnosis of certainty.

- Special methods of diagnosing traumatic reticulitis are very precise especially in acute forms of disease, they lose their loyalty with a chronic process.

- Examination of rumen fluid gives further information on his basis we can be able to very precisely determine the reached evolutionary form of the disease and we can guide the preparation of early postoperative care.

- Radiography is the most accurate paraclinical examination in identifying radiopaque foreign bodies. His drawback is that we can not identify foreign bodies non-radiopaque.

- Feroscope examination of the animals although very effective in identifying metallic foreign bodies not provide us with information on their number nor their direction of implantation.

- Ultrasound, although useful in identifying abscesses, pericarditis, and pleuritic is not effective in identifying foreign bodies long and thin.

- Following preventive measures to limit the traumatic reticulitis imposed in the district Santău illness percentage decreased to 3.82%. Prevention of traumatic reticulitis applying intrareticular magnets, very agreeable way with a few years ago, has limited results and can lead to reticulitis symptoms due magnet.

- The best prevention method is the use of feroscopy associated with extracting metallic bodies with the magnetic probe indicating that it is effective in capturing and retrieving active metal bodies.
• Combined conservative treatment had a success rate of 70% and surgery had a success rate of 93%. Rumenotomy practice not only has the advantage of foreign body extraction but also offers the possibility of exploring the abdominal cavity and thus expression of a prognosis.

• Of all animals that had no symptoms of traumatic reticulitis, 69.81% had intrareticular metallic foreign bodies.