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IV- COMMON DISEASES IN DAIRY CATTLE TREATED BY OPERATION METHOD

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   2.3 - Treatment
     2.3.1- Rolling method
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   3.1. Introduction
   3.2. Symptoms
   3.3. Diagnosis
   3.4- Remark

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   4.1 : Symptoms
   4.2: Treatment: By operation

CHAPTER 4. CESARIAN SECTION METHOD (C.S METHOD)

1. Basic requirements when using CS method
2. CS method
3. Start operation:
4. After operation

V- Surgical instruments
I - Introduction

1. Bovine anatomy

![Digestion organs from left flank](image)

6- Gan  
7- Túi mật  
8- Đa mủi khể  
9- Đa dày

10- Đoạn nối giữa đa dày và ruột  
12- Tá tràng  
14- Không tràng  
15- Mạnh tràng

17, 18, 19- Kết tràng  
22- Bàng quang  
23- Thận phải  
24- Phổi

![Digestion organs from right flank](image)

5- Phổi  
10- Đa mủi khể  
11- Đa cổ trên trunc\n
12- Đa cổ dưới trunc  
13- Đa cổ trên sau  
14- Đa cổ dưới sau

15- Đa dày  
18- Bàng quang  
19- Hồi tràng

Trung tâm Nghiên cứu Bò và Động cỏ Ba Vì  
Hà Nội, 10-2008
2. Ruminant digestion physiology
   
   a. Functions of digestion organs.
   
   - There are 4 bags inside stomach of ruminant:
     - Rumen: This is the biggest organ. Its main function is to ferment feed.
     - Reticulum: It has responsible to push hard feed to rumen and grinded feed to omasum.
     - Omasum: It absorb water, mineral and vitamin.
     - Abomasum: Its function like a single rumen is to digest feed.

   b. Intestine
   
   - The absorption of feed is done mainly in small intestine under the effect of intestinal fluid, pancreatic fluid and gall fluid.
   - In large intestine, there is the second microorganism fermentation. Feed, which has not digested in rumen yet, continue to be digested in large intestine.

   c. Ruminant digestion physiology
   
   - Rumen is considered as a fermentation store with the main function of feed digestion (concentrate and rougage feed). Rumen is a favourable condition for anaerobe so the temperature is quite stable around 38-40°C, pH: 5.5-7.4.
   - In rumen, about 50-80% of feed is fermented. The main products of this process is ABBH, mass of living organisms and methane.
   - Mass of living organisms and other matters which can not be fermented is moved to the next digestive stage.

   d. Rumination

   - Feed after going to rumen will be fermented. Feed which have not ruminated well in rumen and reticulum sometimes go upward and are ruminated again.
   - Rumination happens from 5 to 6 times per day. Each time lasts around 50 minutes. Time of re-rumination depends on type of feed, cattle health and environment temperature.
e. **Salivary gland**

- Feed are penetrated with saliva.
- Saliva is secreted and swallowed continuously in cattle. With Na\(^+\), K\(^+\), Ca\(^{2+}\), Mg\(^{2+}\), saliva helps adjust N and P in rumen.
- The secretion of saliva is affected by type of feed, fibrous matter contend in feed, digestion track volume and cattle health. Cattle eats more rougage feed will secrets more saliva.
- When cattle reduces to secret saliva, the digestion will be less effective.

f. **Microorganism's role in rumen**

- Bacteria: Bacteria are divided into some groups according to their role in disintegration matters like xenluloza, hemixenluloza, starch, glucose, protein, etc. They can use NH\(_3\)
- Protozoans: Protozoans have function to break botanic cell membrane and increase contacting area. Thus, they are easily affected by microorganism and can not use NH\(_3\).
- Fungi: Fungi are the first microorganism which enter into feed. They secret fruid to digest fibrous matter and support for microorganism's disintegration capacity.

**In summary:**

- **Ruminat stomach includes 4 bags, in which rumen is the digest bag where stores and ferments feed by microorganism.**
- **Rumination is a important process to grind well feed. It is necessary to supply enough forage feed for cattle to carry out ruminating.**
- **Microorganism which disintegrate starch and microorganism which disintegrate forage feed work in defferent pH environment. Thus, it is very important to provide balance between concentrate and forage feed for cattle.**
- **Division into many times per day is the best way in supplying concentrate feed for cattle. It is not good when providing concentrate feed before providing forage feed.**
Urea supplementation in feed is necessary.
II - Chapter 1. CLINICAL VETERINARY DIAGNOSIS TECHNIQUE

1- Necessary goods:

- Stethoscope
- Thermometer
- Watch
- Medical Record
- Veterinary Uniform

2- How to get Diagnosis:

2.1- Ask the farmer:
- Calving date, Age & Calving rate, When started, Main symptom, Milk production

2.2- Listen:
- Pulse rate
- Respiratory rate
- Rumen movement
- Intestine sound
- Ping sound

2.3- Look
- Body temperature
- Eye
- Mucous membrane
- Feces condition
- Body condition
- Hair condition
- Urine color

2.4- Smell
- Respiratory smell
- Feces smell

2.5- Touch
- Rectal palpation
- Skin temperature
- Pain place
- Manipulation
- Rumen size

2.6- Take samples for inspection
Blood  
Feces  
Urine  
Bacteria culture  
Milk  

2.7- Recording information into treatment sheet:

<table>
<thead>
<tr>
<th>Treatment sheet</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. General information</strong></td>
</tr>
<tr>
<td>Name of farmer/owner:…………………………………………………………………………………………………………..</td>
</tr>
<tr>
<td>Address:……………………………………………………………………………………………………………………………..</td>
</tr>
<tr>
<td>……….Ear mark……………Breed……………….</td>
</tr>
<tr>
<td>Symptoms</td>
</tr>
<tr>
<td><strong>B. Treatment information</strong></td>
</tr>
<tr>
<td><strong>I. Chiếu trứng:</strong></td>
</tr>
<tr>
<td>Body temperature:…… °C. pulse:……/minute. Rumen contraction:…. Intestine contraction:….</td>
</tr>
<tr>
<td>……………………………………………………………………………………………………………………………………………</td>
</tr>
<tr>
<td>……………………………………………………………………………………………………………………………………………</td>
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<tr>
<td>……………………………………………………………………………………………………………………………………………</td>
</tr>
<tr>
<td>**II. Diagnosis……………………………………………………………………………………………………………………..</td>
</tr>
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</tr>
<tr>
<td>……………………………………………………………………………………………………………………………………………</td>
</tr>
<tr>
<td><strong>III. Medicine</strong></td>
</tr>
<tr>
<td>1……………………………………………………………………………………………………………………………………..</td>
</tr>
<tr>
<td>2……………………………………………………………………………………………………………………………………..</td>
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<tr>
<td>3……………………………………………………………………………………………………………………………………..</td>
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<tr>
<td>4……………………………………………………………………………………………………………………………………..</td>
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<tr>
<td>5……………………………………………………………………………………………………………………………………..</td>
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<tr>
<td>6……………………………………………………………………………………………………………………………………..</td>
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<tr>
<td>7……………………………………………………………………………………………………………………………………..</td>
</tr>
<tr>
<td>8……………………………………………………………………………………………………………………………………..</td>
</tr>
<tr>
<td><strong>IV. Treatment time</strong></td>
</tr>
<tr>
<td>…………………………………………………………………………………………………………………………………………..</td>
</tr>
<tr>
<td>…………………………………………………………………………………………………………………………………………..</td>
</tr>
</tbody>
</table>

Date…month…year…
Notes:
- Technician/veterinarian must record information like body weight, body temperature, pulse, rumen contraction and sounds when get diagnosis.
- Farmer should keep record for next diagnosis.

2.8- Inspection in Lab.

2.8.1- Inspection for disease

Take samples of blood, milk, urine and feces for inspection.

a) Blood sample:
   - Taking method: Blood sample can be taken from neck vena or tail artery:

   ![Blood sample](image)

   Blood sample is taken from neck vena
Blood sample is taken from tail artery

- Centrifuge 11000~12000r/min. 5min
- Blood inspection by indicators:
  - Hematocrit (Ht)
  - WBC
  - PP.
  - SP
- Fibrinogen
- WBC count

In which, Ht, WBC, PP, SP, Fibrinogen are key indicators in recognizing diseases.
- Ht gives the signs of blood diseases or dehydration. In case of anemia, if Ht ranges from 7% to 15%, it is time for blood transfusion immediately. You can transfuse from 2 liters to 3 liters of blood, depending on blood available. However, in case there is only 200cc or 300cc of blood, you can still make transfusion. If Ht is higher than 50%, it is dehydration.
- WBC shows the signs of inflammation, poisonings or white blood cell diseases.
- PP indicator talks about the signs of jaundice.
- SP tell us the signs of chronic inflammation or malnutrition.
- Fibrinogen shows the sings of chronic inflammation, ileus.

Ht, WBC, SP and Fibrinogen in a normal strong cattle:
- Ht: 24-44%
- WBC: 4000-12000/µl
- PP: 7.0 – 8.2 g/dl
- SP: 6.0-7.5 g/dl
- Fib: 300-700 mg/dl

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Unit</th>
<th>Average</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ht</td>
<td>%</td>
<td>35</td>
<td>24 – 44</td>
</tr>
<tr>
<td>WBC</td>
<td>/µl</td>
<td>8,000</td>
<td>4,000 – 12,000</td>
</tr>
<tr>
<td>PP</td>
<td>g/100ml</td>
<td>7.6</td>
<td>7.0 - 8.2</td>
</tr>
<tr>
<td>SP</td>
<td>g/100ml</td>
<td>7.1</td>
<td>6.0 – 7.5</td>
</tr>
<tr>
<td>Fib</td>
<td>g/100ml</td>
<td>0.5</td>
<td>0.3 – 0.7</td>
</tr>
</tbody>
</table>

When indicators change (increase or decrease), they show signs of some disease as follow:

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Increase</th>
<th>Decrease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ht</td>
<td>Dehydration, heat stroke, endotoxemia</td>
<td>Anemia, piroplasmosis, blood parasite, anaplasmosis</td>
</tr>
<tr>
<td>WBC</td>
<td>Inflammation, infection disease, purulent disease</td>
<td>Poisonings, endotoxemia, viral infection</td>
</tr>
<tr>
<td>SP</td>
<td>Increase of albumin</td>
<td>Decrease of albumin, nephritis</td>
</tr>
<tr>
<td>PP</td>
<td>Jaundice</td>
<td></td>
</tr>
<tr>
<td>Fib</td>
<td>Acute infection, chronic inflammation</td>
<td>Hepatic insufficient</td>
</tr>
</tbody>
</table>

To differentiate WBC, you use Giemsa stain method. The steps as follow:

- Put blood in glass sheet
Thú y làm sàng
Dự án nâng cao kỹ thuật chăn nuôi bò sữa tại các trang trại vú và nhỏ ở Việt Nam

- Giemsa stain
- Observe in microscope
The results can compare with the below table of “normal strong cattle indicators”:

<table>
<thead>
<tr>
<th></th>
<th>Ave (%)</th>
<th>Range (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neutrophil</td>
<td>Neutrophil Band</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>Neutrophil Segment</td>
<td>28</td>
</tr>
<tr>
<td>Lymphocyte</td>
<td>58</td>
<td>45 - 75</td>
</tr>
<tr>
<td>Monocyte</td>
<td>4</td>
<td>2 - 7</td>
</tr>
<tr>
<td>Eosinophil</td>
<td>9</td>
<td>2 - 20</td>
</tr>
<tr>
<td>Basophil</td>
<td>0.5</td>
<td>0 - 2</td>
</tr>
</tbody>
</table>

The results are explained in below table:

<table>
<thead>
<tr>
<th></th>
<th>Increase</th>
<th>Decrease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neutrophil</td>
<td>Neutrophil Band: The first stage of acute disease</td>
<td>Neutrophil Band: Chronic disease</td>
</tr>
<tr>
<td></td>
<td>Neutrophil Segment</td>
<td>Neutrophil Band: Acute disease</td>
</tr>
<tr>
<td>Lymphocyte</td>
<td>Acute disease</td>
<td>Acute disease</td>
</tr>
<tr>
<td>Monocyte</td>
<td>Bacterial contamination</td>
<td>Acute disease</td>
</tr>
<tr>
<td>Eosinophil</td>
<td>Blood parasite diseases</td>
<td>Anaplasmosis</td>
</tr>
<tr>
<td>Basophil</td>
<td>Chronic disease</td>
<td></td>
</tr>
</tbody>
</table>

Especially, 

Giemsa stain method is used to differentiate type of blood parasites.

Images of different types of white blood cell:
Advanced part: Using blood inspection result to diagnose ileus (intestine disease) (this part will be described in III-3).

b) Urine inspection

Urine sample taking method: Using colposcope and rubber catheter as in picture:

In urine, we will inspect Protein, ketone, leukocyte, nitrite, urobilinogen, pH, blood, bilirubin, glucose, etc.

To check, we use urine examination paper stick and then compare the results with color reagent strip.
The positive result explanation:

<table>
<thead>
<tr>
<th>Phenomenon</th>
<th>Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein in urine</td>
<td>Nephrosis</td>
</tr>
<tr>
<td>Blood in urine</td>
<td>Cytitis, babesiosis, anaplasmosis</td>
</tr>
<tr>
<td>Ketone</td>
<td>Ketosis, abomasal displacement</td>
</tr>
</tbody>
</table>

c) **Feces inspection:**
Inspect eggs of parasite, worm, fasciola.

![Feces collection](image1)
![Watanabe’s method](image2)
![Fasciona hepatica](image3)

**d) Milk inspection**

Inspect electricity conductance (EC), mastitis (CMT method).
Milk inspection helps prevent mastitis, therefore milk for inspection should be aseptic.

The results of EC and mastitis inspection are explained as follows:

<table>
<thead>
<tr>
<th></th>
<th>Positive</th>
<th>Disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC</td>
<td>Increasing penetrability of blood vessel</td>
<td>The first stage of clinical mastitis</td>
</tr>
<tr>
<td>CMT</td>
<td>Increasing leucocytes and SCC</td>
<td>Subclinical mastitis</td>
</tr>
</tbody>
</table>

After inspecting EC and CMT, in order to identify bacteria type and antibiotics, which is suitable with each type of bacterium, you can carry out culturing in lab. 24 hours after culturing in incubator, observe and identify type of bacteria.

To find out antibiotics suitable with each type of bacterium, using sensitivity test (method of Muller Hinton Agar):

The results are explained in the following table:

<table>
<thead>
<tr>
<th>Result</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitiveness</td>
<td>If using this antibiotics you can get unsuccessful result.</td>
</tr>
</tbody>
</table>
Insensitiveness | If using this antibiotics, you can get more successful result but this is not true for all cases.

To check bacteria types inside the milk, carrying out bacteria culture in agar.

- Take milk sample:

- Put agar inside incubator within 24 hours, then take out and check:

2.8.2- Differential diagnosis in laboratory examination

<table>
<thead>
<tr>
<th>Ht, Increased</th>
<th>Absolute erythrocytosis</th>
<th>Chronic hepatic disease</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Congenital cardiovascular disease</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hemangioblastoma</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hepatoma</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Living in high altitudes</td>
</tr>
<tr>
<td>Relative erythrocytosis</td>
<td>Dehydration</td>
<td>Intestinal strangulation / obstruction</td>
</tr>
<tr>
<td>Endotoxic shock</td>
<td></td>
<td>Salmonellosis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Septic mastitis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Septic metritis</td>
</tr>
<tr>
<td>Blood loss</td>
<td>Abomasal ulcer</td>
<td></td>
</tr>
<tr>
<td>--------------------------------</td>
<td>----------------------</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Moldy sweet clover toxicity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Parasites (Internal and External)</td>
<td></td>
</tr>
<tr>
<td>Hemolysis</td>
<td>Anaplasmosis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bacillary hemoglobinuria</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Brassica toxicity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Copper toxicity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Leptospirosis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Onion toxicity</td>
<td></td>
</tr>
<tr>
<td>Inadequate RBC production</td>
<td>Bracken Fern toxicosis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chronic abscess</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chronic bovine viral diarrhea virus (BVD)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chronic pneumonia</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Johne’s disease</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Liver abscess</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lymphosarcoma</td>
<td></td>
</tr>
<tr>
<td>Neutrophilia</td>
<td>Chronic metritis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chronic pyelonephritis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Enteritis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Internal abscess</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Liver abscess</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Neonatal septicemia</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Peritonitis</td>
<td></td>
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<tr>
<td></td>
<td>Septic arthritis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stress</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Toxins</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Umbilical abscess</td>
<td></td>
</tr>
<tr>
<td>Lymphopenia</td>
<td>Acute pneumonia</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Diffuse peritonitis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gram negative septicemia / endotoxemia</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Infectious bovine rhinotracheitis (IBD)</td>
<td></td>
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<tr>
<td></td>
<td>Steroid administration</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stress</td>
<td></td>
</tr>
<tr>
<td>Monocytosis</td>
<td>Chronic bacterial infectious</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Granulomatous disease</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Acute pneumonia</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Acute pneumonia</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Clostridial infection</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fat cow syndrome</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gram negative septicemia / endotoxemia</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Peritonitis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Septic mastitis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Septic metritis</td>
<td></td>
</tr>
<tr>
<td>Eosinophilia</td>
<td>Acute bovine pulmonary emphysema</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Allergies</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Atypical interstitial pneumonia</td>
<td></td>
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<tr>
<td></td>
<td>Migrating parasites</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Milk allergies</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sarcocystosis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Toxoplasmosis</td>
<td></td>
</tr>
</tbody>
</table>

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Dự án nâng cao kỹ thuật chăn nuôi bò sữa tại các trang trại vừa và nhỏ ở Việt Nam

Trung tâm Nghiên cứu Bò và Động cỏ Ba Vì
Hà Nội, 10-2008
| (Hyperfibrinogenemia) | Acute inflammatory disease  
|                       | Acute mastitis  
|                       | Omphalophlebitis  
|                       | Pleuritis  
|                       | Pneumonia  
|                       | Traumatic reticuloperitonitis / pericarditis  
|                       | Umbilical infection  
| (Fibrin / Fibrinogen Degradation Product, Elevated) | Disseminated intravascular coagulation  
|                       | Immuno-mediated thrombocytopenia  
|                       | Postoperative states  
|                       | Severe inflammatory disorders  
| (Hyperproteinemina) | Coccidiosis  
|                       | Diarrhea  
|                       | Panhyperproteinemia - dehydration  
|                       | Peritonitis  
|                       | Ruminal acidosis  
|                       | Salmonellosis  
|                       | Salt toxicity  
|                       | Septic toxemia (Mastitis / Metritis)  
|                       | Toxins  
|                       | Vagal indigestion  
|                       | Hyperparathyroidism  
|                       | Postparturient hemoglobinuria  
|                       | Starvation  
| (Hypoproteinemina) | Giảm albumin (Hypoalbuminemia)  
|                       | Amyloidosis  
|                       | Glomerulonephritis  
|                       | Johne’s Disease  
|                       | Pyelonephritis  
|                       | Salmonellosis  
|                       | Trichostrongyle infection  
| (Panhypoproteinemina) | Acute blood loss  
|                       | Excessive IV fluid or water intake  
|                       | Gastrointestinal ulceration  
|                       | Parasites (Internal and External)  

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Trung tâm Nghiên cứu Bò và Đồng cỏ Ba Vì

Hà Nội, 10-2008
III – CHAPTER 2. Practice of Clinical Technique

1- Injection
   4.1.1 Intra muscle
   4.1.2 Under skin
   4.1.3 Intra veinus
   4.1.4 Conjunctive
   4.1.5 Trachea

2- Oral
   4.2.1 Give magnet (Check magnet)
   4.2.2 Pipe & Tube
   4.2.3 Catheter by nose

3- Anesthesia
   4.3.1 General
   4.3.2 Local
   4.3.3 Local at foot, at horn
4- Restrain

5- Fell down method

6- Take Urine

7- Blood transfusion

7.1 Anti coagulant

- Citrate 500mg for 100 ml blood
- Heparin 500iu for 100 ml blood

7.2 Amount

7.2.1 Adult cow 2-3 lt
7.2.2 Calf 200 ml – 500 ml

7.3 Adaptation

7.3.1 Anemia (Ht 15%>
7.3.2 Disseminated Intravascular Coagulation

7.3.3 No crostnum

7.3.4 Caution for taking blood
  7.3.4.1.1 Certainly restrained
  7.3.4.1.2 Tie its neck by thin rope
  7.3.4.1.3 Shake slowly
  7.3.4.1.4 Use big infuse tube or small troker
  7.3.4.1.5 Observe speed
  7.3.4.1.6 Dilute A.C. by ringer
  7.3.4.1.7 full D.A.C until top of needle

7.3.5 Caution for infusing blood
  7.3.5.1.1 Restrain properly
  7.3.5.1.2 Wash by ringer
IV- COMMON DISEASES IN DAIRY CATTLE TREATED BY OPERATION METHOD

1. Clinical symptoms table of some diseases

<table>
<thead>
<tr>
<th>Clinical symptoms</th>
<th>Disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animia</td>
<td>Theileriosis</td>
</tr>
<tr>
<td></td>
<td>Babesiosis</td>
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<tr>
<td></td>
<td>Anaplasmosis</td>
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<tr>
<td>Heart diseases</td>
<td>Traumatic pericarditis</td>
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<td></td>
<td>Endocarditis</td>
</tr>
<tr>
<td>Respiratory diseases</td>
<td>Pneumonia</td>
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<tr>
<td></td>
<td>Bronchitis, laryngitis</td>
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<tr>
<td></td>
<td>Heat stroke</td>
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<tr>
<td>Cogh</td>
<td>Bronchitis, pneumonia</td>
</tr>
<tr>
<td></td>
<td>Bovine dictyocauliasis, Bovine lung worm infection, Verminous bronchitis,</td>
</tr>
<tr>
<td></td>
<td>Fascioliasis, Liver fluke disease</td>
</tr>
<tr>
<td></td>
<td>Tuberculosis</td>
</tr>
<tr>
<td>Salivate</td>
<td>Oesophageal obstruction</td>
</tr>
<tr>
<td></td>
<td>Blood parasite</td>
</tr>
<tr>
<td></td>
<td>Foot and mouth disease</td>
</tr>
<tr>
<td>Low appetite for a long time or un</td>
<td>Peritonitis</td>
</tr>
<tr>
<td>stability</td>
<td>Dilation of rumen contraction</td>
</tr>
<tr>
<td></td>
<td>Abomasal displacement</td>
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<tr>
<td></td>
<td>Abomasal ulcer</td>
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<tr>
<td></td>
<td>Ketosis</td>
</tr>
<tr>
<td>Stomach parin</td>
<td>Peritonitis</td>
</tr>
<tr>
<td></td>
<td>Hair in rumen of calf</td>
</tr>
<tr>
<td></td>
<td>Uterus torsion</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>Diarrhea in calf</td>
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<tr>
<td></td>
<td>White feces in calf</td>
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<tr>
<td></td>
<td>Enteritis</td>
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<tr>
<td></td>
<td>Starch transformation disturbance</td>
</tr>
<tr>
<td>Bloody feces</td>
<td>Coccidiasies</td>
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<tr>
<td></td>
<td>Acute pointionings</td>
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<tr>
<td></td>
<td>Salmonellosis</td>
</tr>
<tr>
<td>Constipation</td>
<td>Dilation of ceacum, blood congestion</td>
</tr>
<tr>
<td>Abnormal urination posture</td>
<td>Cystitis</td>
</tr>
<tr>
<td>Bloody urine</td>
<td>Bacillary pyelonephritis</td>
</tr>
<tr>
<td>Abnormal foot and claw</td>
<td>Sole ulcer</td>
</tr>
<tr>
<td>Condition</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>Arthritis</td>
<td>Foot and mouth disease</td>
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<tr>
<td></td>
<td>Digital dermatitis</td>
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<tr>
<td></td>
<td>Laminitis</td>
</tr>
<tr>
<td>Abnormal gait</td>
<td>Polyarthritis</td>
</tr>
<tr>
<td></td>
<td>Dilation of fore limb ligament</td>
</tr>
<tr>
<td>Downer before calving</td>
<td>Mineral insufficient, malnutrition</td>
</tr>
<tr>
<td></td>
<td>Periparturient downer</td>
</tr>
<tr>
<td>Downer after calving</td>
<td>Milk fever</td>
</tr>
<tr>
<td>Nervous signs</td>
<td>Forage tetanus (Magieum insufficient)</td>
</tr>
<tr>
<td></td>
<td>Tetanus</td>
</tr>
<tr>
<td></td>
<td>Malignant catarrhal fever</td>
</tr>
<tr>
<td>Retardation disease</td>
<td>Virus diarrhea</td>
</tr>
<tr>
<td>Malnutrition</td>
<td>Fascioliasis, Liver fluke disease</td>
</tr>
<tr>
<td></td>
<td>Traumatic splenitis</td>
</tr>
<tr>
<td>Flatulence</td>
<td>Rumen bloating, organics poisonings, cassava poisonings</td>
</tr>
<tr>
<td>Abnormal skin</td>
<td>Dermatophytosis</td>
</tr>
<tr>
<td></td>
<td>Papillomatosis</td>
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<tr>
<td></td>
<td>photosensitization</td>
</tr>
<tr>
<td></td>
<td>Actinomycosis</td>
</tr>
<tr>
<td>Swollen lymphonode</td>
<td>Leukemia, tuberculosis,</td>
</tr>
<tr>
<td>Abnormal eyes</td>
<td>Conjunctivitis</td>
</tr>
<tr>
<td></td>
<td>Cornea disease</td>
</tr>
<tr>
<td>Abnormal phenomena after calving 3 days</td>
<td>Retained placenta</td>
</tr>
<tr>
<td></td>
<td>Milk fever</td>
</tr>
<tr>
<td>Abnormal udder</td>
<td>Mastitis</td>
</tr>
<tr>
<td>Neonatal diseases</td>
<td>Umbilical infection, swollen umbilicus, pneumonia, diarrhea, virus fever</td>
</tr>
<tr>
<td>Sudden death</td>
<td>Anthrax</td>
</tr>
<tr>
<td></td>
<td>Blackleg</td>
</tr>
<tr>
<td></td>
<td>Malignant edema</td>
</tr>
<tr>
<td></td>
<td>Acute blood congestion</td>
</tr>
<tr>
<td></td>
<td>Acute poisonings</td>
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<tr>
<td></td>
<td>Enterotoxenemia</td>
</tr>
<tr>
<td></td>
<td>Gangrenous mastitis</td>
</tr>
</tbody>
</table>

2. Abomasal displacement

2.1 – Introduction

- Concept: Abomasal displacement is case when abomasum goes out of its normal position inside cattle stomach.
- Occurring time: This disease often occurs around 60 days after calving.
- Causes: In actual, it is very difficult to identify direct cause of abomasal displacement exactly. Some objective reasons are considered. They are feeding
and management periparturition, inadequate exercise, space in stomach after calving, milk gland troubles, uterin problems or fatty liver. All those possibilities make rumen and intestine movement slowly, as a result, there is a continuous change in position of abomasum and it starts dilation (due to air coming inside).

- **A.D types:** There are 3 types of A.D. They are left A.D, right A.D and volvulus.

### 2.2 - Diagnosis

- **Symptoms:** Low appetite, no feces and milk yield decrease.
- **Diagnosis:**
  - You can use many different method to diagnose this disease precisely. A popular method, which is chosen by almost of current veterinarians, is percussion. It means that veterinarian use stethoscope to listen to ping sound in cattle stomach. However, because some other digestion organs like intestine, ceacum, rectum also create ping sound, it requires a highly precise diagnosis. Normally, ping sound created by abomasum can discovered and listened to in the middle place between 9th rib and 13th rib. Concerning to picture 1:

  ![Hình 1: The place of ping sound created by abomasum.](image)

- **Differentiate place of percussion in A.D disease and other diseases:**
Hình 2: *Differentiate place of percussion in A.D disease and other diseases.*

- If ping sound is not clear, you can get diagnosis by other methods to be sure your diagnosis result. One of them is pH checking method to identify where fluid comes from. Using troca tube to check pH in rumen and blood abnormal circulation.
  
  + If pH<3.5, fluid from abomasum, it means A.D disease.
  
  + If pH>5.5, fluid from intestine or other digestion organs.

2.3 - *Treatment*

The purposes of treatment are to reposition abomasum into its normal position, to prevent this disease coming back and to minimum cost for farmer. A.D
disease can be treated by two main methods: closing method (or rolling method) and opening method (surgery). Among them, rolling method is less cost and more simple. However, depending on each case, veterinarian chooses suitable method.

2.3.1- Rolling method

- **Steps:**

  ![Image of rolling method](https://via.placeholder.com/150)

  - Let the cattle lie down
  - Tie cattle’s legs with rope
  - Upturn cattle’s abdomen
  - Roll cattle’s abdomen and then push strongly
  - Keep the cattle lie with that position within 5 to 10 minutes
  - After 5 to 10 minutes, let the cattle stand up and use stethoscope to check abomasum (abomasum often locates in the right).
  - Transfuse Ca and glucose for cattle

- **Attention:**

  - After giving treatment, do not feed cattle too much concentrate feeds but feed gradually. After 1 week, feed them a normal amount of concentrate food.
  - After treatment, let cattle play around paddock to do exercise.
  - Rate of recovery: 20%; cattle can get this disease again after treatment.
  - To help avoid repetition of this disease, we can use nail to fix the abomasum after rolling. However, this way is very dangerous as nail can destroy or infect inner organs of the cattle.
This method should only be applied in case cattle have very light abomasal displacement from the left, and should not be applied to cattle whose abomasal displacement is more severe and those can not breath easily

**2.3.2- Operation method**

1.3.2.1 Preparation of Operation

- **Equipment**

Surgical equipment set
Deflating tube, Surgical suture (absorbable, non-absorbable)
Gauze, Surgical glove, Glove for RP, Cotton

- Local anesthesia
  
  2%Lidcain 50~100ml under skin of right flank

- Disinfectant
  
  Povidone Iodin, 70% Alchol, Chlrlhexidine

- Medicine
  
  Antibiotic (Penicillin 6m.iux2, Sodium chloride 500mlx2)

2.3.2.2- Operation

- Washing by soup at right flank area
- Shaving
- Local anesthesia S.C. 2% Lidcain 50~100ml
- Antibiotic I.M. (penicillin 6m.iu)
- Disinfection (PI-AL-PI-AL-PI-AL)
- Cut skin 20~25cm by blade
- Cut muscle
- Cut peritoneum by seizer
- Deflating by tube
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- Repositioning
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A

B

C
- Catch up pylorus

- Anchoring 2 points to peritoneum and muscle by non-absorbable suture

- Infuse (Sodium chloride 500ml & Penicillin 4.5m.iu) into Abdomen
- Continuous stitch peritoneum by absorbable suture
- Washing by SCW (Sodium chloride 500ml & Penicillin 1.5m.iu)
- Continuous stitch muscle 1~2 times by absorbable suture
- Washing by SCW
- Stitch skin by non-absorbable suture
2.3.2.3- After care

- After operation, take the cattle back to the cowshed. However, to ensure that the cattle will recover well, use additional drugs properly, especially to the area where operation was taken place
- IM Penicillin 6m.iu 3days
- After operation, if cattle’s heart beat is under 90, it is a good sign, but if heart beat is more than 120, there is possibility of water loss, which means the rate of recovery is very low
- Provide cattle with 20l of warm water mixed with 30g of salt twice a day
- If no appetite, infuse 5% glucose 500ml
- Increase concentrate step by step until 7days later
- Take off suture 10 days later
- If cattle get other diseases such as mastitis during this time, it is necessary to consider special treatment method for these diseases

Attentions when operating abomasal displacement (torsion type):

- If cattle have torsion-typed abomasal displacement, when we conduct percussion test, we can hear sounds like water.
- If cattle already suffered from this disease for long time, we should not give treatment.
- In case cattle lose a lot of water, transfuse physiological saline during and after the operation.
Picture 6: Abomasum torsion: *Abomasum and omasum hemorrhage and gangrene*

3. **Ileus (Intestinal Obstruction/Torsion)**
Picture 7: An image of ileus condition

3.1. Introduction
- Definition: Ileus (or intestine obstruction/torsion) is full or partial obstruction/constipation of the flow of gas, liquid or solid substances inside the intestine.
- Subjects: Among heifer and cows

3.2. Symptoms
- Cattle are very painful, strain a lot, often kick the hind leg and abdominal area, show unstable and uncomfortable appearance and stance.
- Acute case: after showing very painful look, cattle turn to be very quiet, lose appetite totally and stop producing milk.
- Heart beat: at first, heart beat will reach up to 120 and then reduce.
- Feces have black color and cows stop producing feces.
- After 24h, cattle still feel very painful and keep straining and crying.
- After 5 or 7 days, cattle will die if they are not treated.

3.3. Diagnosis
- We can diagnose this disease by rectal palpation.
- Or by using laboratory test: Blood test.
  + How to do: Collect blood sample, put blood sample into specialised test tube, centrifuge within 5 minutes. After that, immerse the blood tube in
water of 56°C in 3 minutes. Next, centrifuge in 1 minute and finally, read out the results of Fibrinogen.

+ How to interpret Fib’s results: we need to read results of Serum Protein (SP) and Plasma Protein (PP) first. Then, calculate the amount of Fib using the formula: \[ PP - SP = \Delta \]

The amount of Fib (mg) = \( \Delta \times 1000 \)

+ Results:
  - If PP > SP, which means \( \Delta \) has positive result, we can conclude that the cattle does not have intestinal obstruction/torsion.
  - If PP < SP, which means \( \Delta \) has negative result, we can conclude that the cattle has intestinal obstruction/torsion.

- Treatment: By operation and injection. Operate the right flank. Follow fully all operation steps: shave hair and then disinfect the operated area.
- Start the operation by opening the skin layer, and then the muscle layer, using operation knife.
- After opening, use hand to find out the intestinal section where obstruction/torsion occurs.
- Tie the blood tissues of the intestinal section you intend to cut.
- Cut the obstructed or torsive intestinal part.
- Close the intestine, then close the peritoneum.
- Wash the intestine with saline
- Pour the physiological saline into abdominal cavity.
- Stitch to close the operated area.

*Picture 12: Fix intestine*
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Picture 13: Cut intestine

Picture 14: Stich intestine and peritoneum
3.4- Remark
- After the operation, treat with antibiotics continuously in 5 days.
- 24h to 48h after the operation, if cattle starts to produce feces, it means that the operation is successful.

4. Caecum torsion

Picture 8: Caecum torsion
Picture 9: Colon bloat
4.1: Symptoms

- Cattle stops eating, drinking and producing feces.
- Health condition gets worse dramatically, some painful and uncomfortable symptoms near the abdominal area.
- If we touch the abdominal area, it feels hard.
4.2: Treatment: By operation

Operation method is same as method used for intestinal obstruction/torsion.

CHAPTER 4. CESARIAN SECTION METHOD (C.S METHOD)

If the cow has dystocia or in case the fetus is too big but still alive and the cow cannot deliver by herself, the best way is to conduct CS method to save both mother cow and the calf.

Farm owner is very happy looking at the calf drinking the first milk after the calf was born with the aid of CS method.

- CS method is applied to the following cases:
  - Cervix is too narrow, part of fetus membrane has reached the vagina but the cervix does not open largely enough for the fetus to come out.
  - The uterus is twisted, which makes technician fail to touch the fetus.
  - The mother cow is too weak, technician has already used stimulating drugs to improve labor but no use.
- Fetus is too big and/or fetus’s presentation, position or direction is abnormal and we can not simply adjust the fetus by hand.

- Fetus has severe hydro-edema

- Water sac has been expelled too much, the mother cow is in danger and the fetus can not be pulled out.

- CS method can not be applied in these following cases:
  
  - The fetus is dead, starts to smell and rotten. If CS is applied in this case, the mother cow will get peritoneum inflammation, then blood infection and die finally.
  
  - Mother cow is over exhausted after long labors.

**1. Basic requirements when using CS method**

- Carry out CS method as soon as possible

- Prepare all necessary tools and medicine.

- Operation should be done promptly, exactly and try to avoid mother cow’s intestine from slipping/pulling out.

- Do not let water flow into abdominal cavity, otherwise, peritonitis will possibly occur

- Make sure that the stitched uterus is tight.

- After the operation, conduct anti-infection treatment for the whole body.

**2. CS method**

*There are two methods: under the abdomen and on one flank.*
V Operation position: We can choose one of the four operation positions as follows:

- From the left, about 5-8 cm from the left udder vein.
- Between left udder vein and the white line on the middle of the abdomen.
- The white line on the middle of the abdomen.
- 5-8 cm from the right udder vein.

V One advantage of operating from the right of the white line is that rumen will not obstruct pulling out uterus, however, as the operation is near the abdominal wall, it will easily cause intestine to expose to outside.

V Preparation: Let the cattle lie on a dry, thick and clean hay, the cattle should turn to left direction and her two front legs and hind legs should be tied well. Cattle’ head must be kept low always. If there is an operation table, put the cattle on the table.

V Disinfection: Shave hair on the operated area, wash with soap and then dry up and apply iodine alcohol. Put disinfectant cloth on the operated area. Operated area, operation tools and operators’ hands must be disinfected according to proper surgery method.

V Anesthesia: Apply local anesthesia along the incision with Novocain 2%, inject under the skin. Before the cattle lies, we also need to inject the dura mater.

3. Start operation:
4. After operation

- Inject antibiotics and energy drug for cattle everyday.

- If the stitched area is dry, clean and healed well, after 10 days, cut suture.

- Take well care of the cattle and ensure cowshed sanity.

V- Surgical instruments

- Operation scissors

- Abdominal holder
- Needle clip

- Holders

- Surgical needles

  1/2 round
  3/8 round
  1/4 round
  5/8 round
  Straight
- Surgical suture: there are two kinds: normal suture and absorbable suture.
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POLYGLYCOLIC ACID (SYNTHETIC ABSORBABLE SUTURE)

CHROMIC (Catgut)

PLAIN (Catgut)

SILK (Braided)

NYLON (Monofilament)

POLYPROPYLENE (Monofilament)

POLYESTER (Braided)

STAINLESS STEEL WIRE (Monofilament)