NONIONIC CONTRAST SUBSTANCE HISTEROSALPINGOGRAPHY IN THE FEMALE DOG

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Abstract: Some anatomical elements can be pointed out radiologically as a result of some pathological changes which determines the diminution or growth of the opacity of the examined elements. However, there are some organs such as cavity organs or the vascular system, which cannot be pointed out after a common radiological examination. Such is the case of the urogenital system, which cannot be visualized on a simple radiography, because the uterus, the uterine ligaments, cervix, salpinx have attenuation index approximately equal.

In order to visualize the genital area, we have to use by administering some contrast substances. Thus, the radiological examination becomes an extremely important means of both, diagnosing a case and treating a genital disease. The female genital apparatus can be examined both from a functional point of view, when we can appreciate the manifestation of procreation instinct, sexual cycle and other phases, as well as from a physical point of view, by performing an external and internal examination and taking into consideration the most significant semiologic methods.

The histerosalpingography is a special method based on the introduction of ionic contrast substances into the genital duct by pointing out the uterine cavity, mainly uterine tube and ostium abdominal. We have used Ultravist 370; it is a nonionic contrast substance, with low osmolarity and reduced secondary effects.

MATERIAL AND METHOD

We have used many individuals during our investigation and have concentrated on the results show by five female dogs small size, purebred; and different ages. We used Ultravist 370, which represent a quick renal elimination. This present low osmotic pressure; it is also available as a stable solution that can be used right away.

Before administering the substance, the female dogs were examined clinically by observing the most important semiologic method of examination.

A 12 hour diet was established, excepting water. This diet was necessary because the female dogs had been anaesthetized with Acepromazin, administered in doze of 0,15 ml/kg i.m. the contrast substances was administered by using a catheter that was introduced at uterine colus level trough cervix. Before administering the substance we made control radiography, by placing a metallic wired at the catheter level and made the radiography. When the metallic wired is shown radiological at the boucle of uterine colus, it is extracted leaving the canula free inside the lumen; a syringe containing nonionic contrast substance is then attached to the canula.

Each female dog was x-rayed three time and the parameters were modified individually, taking into account the quality of the images and establishing the kilovoltage which determine the penetrability degree of the x-rays, as well as the miliamperage/seconds which determined the luminosity and the contrast of the image. Before and after administering the contrast substance we supervised the physiological parameters related to temperature, pulse and respiration.
RESULTS AND DISCUSSIONS

The first case is that of an adult female dog, common race, 5 years of age, weighing 8 kilo. Following the anaesthesia of the female dog with the help of a sterile syringe adapted to a catheter, the contrast substances was administered at uterine colus level in a doze of 30 ml/animal.

A careful examination of the radiographs revealed the uterine body clearly, while the oviducts were satisfactorily revealed.

For the three exposures the parameters were maintained at the values of 55 kv and 25 mA. From a clinical point of view, the female dog did not show adverse reaction. The control of the physiological parameters, temperature, pulse and respiration, before and after administering the substance did not undergo significant modification.

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Before administration</th>
<th>At 1 minute after administration</th>
<th>At 10 minute after administration</th>
<th>At 20 minute after administration</th>
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<tbody>
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Table 1: the physiological parameters before and after administration

The second case is that of female dog, 6 years old, common race, weighing 4,5 kilo, from Alba Iulia. It results from the anamnesis that the female dog has been unproductive for nearly 3 years. Following the anaesthesia of the female dog we administered intrauterine 20 ml Ultravist 370. The exposure parameters were 55 kv/32 mA. In this case, too, we made control radiography. After the examination of the radiographs we noted that the contrast substance did not go beyond the uterine body; we also noted that the substance come outside. The radiological aspect obtained in these cases showed the existence of a local affection that obturated the lumen of uterine horns at the bifurcation level. Secondary reactions were not shown. The control of the physiological parameters before and after the administration of Ultravist 370 did not undergo significant changes.

<table>
<thead>
<tr>
<th>Parameters</th>
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Table 2: the physiological parameters before and after administration
The third case is that of an adult female dog, common race, weighing 11 kilo. The dose of Ultravist 370 was raised to 40 ml. The exposure parameters were 55 kv/32 mA. We used Acepromazin administrated intramuscular to anaesthetize the female dog. The uterine lumen and the salphynx were made evident in this case, too. After the administration of the substance we did not notice secondary reaction. The controls of the physiological parameters before and after the administration of Ultravist were slightly modified.

<table>
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Table 3: the physiological parameters before and after administration

Case four and five are those of two adult female dogs, common race of medium height, weighing 5 kilo. The two female dogs were clinically examined, supervising the most significant physiological function: temperature, pulse, respiration. Acepromazine 0,15 ml/kg/body was used to anaesthetize the female dog, while the parameters were 55 kv/32 mA. A 20 ml dose of contrast substance was administered. Following the radiological exposure the uterine body and the uterine horns were made evident clearly, while the oviducts were satisfactory revealed.

Fig 1. Histerosalpingography with nonionic contrast substance in female dog (exposure parameter 55kv/32 mA, ventral-dorsal exposure at 15 minutes after administration)

1 – The uterine body
2 – The uterine horns
CONCLUSION AND SUGGESTIONS

- Non ionic contrast substances used in histerosalpingography are very well tolerated by patients
- These substances do not cause secondary reaction
- They do not determine local changes
- The product shows excellent neural tolerance
- It shows minimum influence on cardio-respiratory system
- The quality of images obtained is excellent and help to diagnose a case
- The dose varies according to the size of the anima (20-40 ml)
- The best utilization parameters have the value of 55Kv and 32 mA
- On the basis of the value obtained and taking in consideration the fact we did not register casualties among our patients we strongly recommend the use of non ionic contrast substances in female dog histerosalpingography.

BIBLIOGRAPHY

1. BALLINGER, P., 1995 – Merrill’s Atlas of radiographic Position and Procedures, St.Louis, MO, Mosby CO;