

A PRELIMINARY REPORT ON CONTRAST RADIOGRAPHY OF THE GENITAL TRACT IN THE HARBOUR SEAL (*PHOCA VITULINA*).

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It has been suggested that a high level of P.C.B.'s may be responsible for the low reproductive rate of the Baltic seal populations (HELLE c.s. 1976a). About 40 percent of a sample of Baltic ringed seal (*Phoca hispida*) females of reproductive age showed pathological changes in the uteri (HELLE c.s., 1976b). These pathological changes were also found among grey seals (*Halichoerus grypus*) from the Baltic area, as well as among harbour seals (*Phoca vitulina*) from the Swedish West Coast. HELLE c.s. (1976a) conclude that it is strongly indicated that P.C.B.'s are responsible for the reproductive failure of seals in the Baltic area. 109 uteri of seals sampled in 1975 were studied macroscopically and 47 females showed these pathological changes in the uterus, with stenosis and occlusions of the lumen. Enlarged blood vessels were found in the region of the stenosis or occlusions. These pathological findings, and the significantly higher levels of P.C.B. and D.D.T. residues in seals showing these pathological changes (HELLE c.s., 1976b) make it probable that at least one of these substances is responsible for the very low reproductive rate of the seals in the Baltic area.

The harbour seal population in the Dutch Wadden Sea has decreased during the last decade (from about 1500 in 1968 to 450 in 1979) (HAAFTEN, 1975). A study by REIJNDERS (1979) since 1974 indicates that the significantly higher levels of P.C.B.'s in Dutch adult seals in comparison to the Schleswig Holstein/Denmark population could be responsible for the decrease of the Dutch seal population.

Since 1976, more attention has been paid in this institute to the study of pathological change in seal uteri, but no definite indications of disease have been found.

Stenosis and occlusions may be difficult to diagnose in wet specimens and for this reason we have attempted to study the lumen of the uterus by the use of contrast radiography.

Following unsuccessful attempts to determinate the lumen of uterus and Fallopian tubes using air or bariumsulphatepaste, 65% jodamide meglumine (Uromiro: Squibb B.V.) was used as a contrast agent. 5-10 ml were introduced via a catheter into the cervix. The amount of contrast medium varied with the size of the uterus.

Radiographs were taken with a 55 KV 10 mA mobile unit. The Focal-film distance was appr. 25 cm and the exposure time 0,2 - 0,5 sec. Cronex-X Ray Screen film (blue base) NIF 100 has been used.

Results and comments

The results obtained from our material did not show any occlusions or stenosis in the uteri, with the exception of a small part of the uterine wall which was thickened in one specimen. However this method may be useful for future investigations in harbour seals to investigate pathological changes of the reproductive tract. A suggested procedure for optimal radiographs of the genital tract in living seals is as follows:

1. It will be necessary to have the animal sedated or anaesthetised.
2. It will be useful to empty the alimentary tract with the usual preparations in preventing extraneous shadows appearing on the radiograph.
3. With the animal laying on its side an illuminated vaginal speculum can be gently introduced into the vagina.

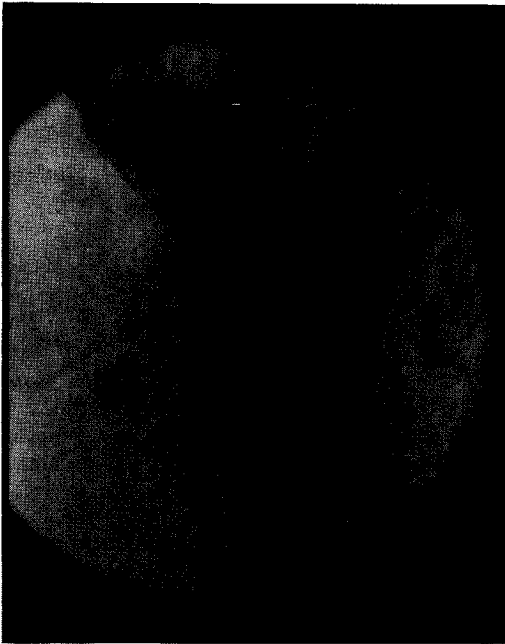


Fig. 1 Radiograph of the genital tract of a harbour seal.

4. A catheter is introduced through the uterine cervix. It would be helpful to use a balloon catheter to prevent any reflux of the contrast medium into the vagina.
5. The contrast agent employed should be water-soluble to permit its absorption and elimination from the uterus and also relatively viscous so that it does not easily spill back from the uterus. The iodinated organic compound we used can be mixed with sterile aqueous lubricants to increase the viscosity. The amount of contrast agent required will vary with the size and condition of the uterus (to start with 5-10 ml. of the contrast agent seems to be satisfactory). Care must be taken to prevent air bubbles.
6. Radiographs are taken immediately after the introduction of the contrast agent and are repeated after the injection of further amounts of contrast agent if this is considered necessary on examination of the first radiographs.
7. If possible survey radiographs should be obtained prior to the administration of contrast agent in order to evaluate patient preparation and x-ray exposure factors.
8. Precautions should be taken that all procedures are performed under strict sterile conditions, so that no damage to the genital tract can occur.

References

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