

Scientific Report

Ultrasonographic diagnosis of the retained semen straw in the uterus of a repeat breeder cow

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Summary

A 6-year-old lactating Holstein cow with a history of repeat breeding syndrome (failed to conceive after three artificial inseminations (AI) with fertile semen) was referred to the Veterinary Teaching Hospital of the School of Veterinary Medicine, Shiraz University. According to the history, neither abnormal clinical signs, nor uterine discharge had been observed subsequent to AI. The cow had shown signs of oestrus on a cyclic and regular basis. On rectal examination, no palpable object was detected inside the uterine horns, however, transrectal ultrasonographic examination revealed a hyperechoic straw-shape object in the left uterine horn. Left-flank laparotomy was performed and after exposure of left uterine horn, the palpated straw was removed through a small hysterotomy incision. Postoperative follow-up did not show any complication. No attempt was made to inseminate the cow after operation as it was not the farmer's plan to get the cow in calf.

Key words: Ultrasonographic diagnosis, Semen straw, Uterus, Cow

Introduction

Repeat breeding syndrome is one of the important causes of infertility in dairy cows resulting in a significant economic loss due to more inseminations and increased calving interval (Bartlett *et al.*, 1986; Kafi *et al.*, 2007). Using B-mode transrectal ultrasonography, veterinary scientists are now able to monitor normal and abnormal events in the bovine reproduction (Ribadu and Nakao, 1999; Fricke and Cliff, 2005). The present report describes the diagnosis of the retained artificial insemination (AI) straw in the uterus of a repeat breeder cow using B-mode transrectal ultrasonography.

Case history

A 6-year-old lactating Holstein cow with a history of repeat breeding syndrome (failed to conceive after three AI with fertile semen) was referred to the Veterinary

Teaching Hospital of the School of Veterinary Medicine, Shiraz University. According to the owner's statements, no abnormal clinical signs or uterine discharge had been observed subsequent to AI. The cow had shown signs of oestrus on a cyclic and regular basis. On rectal examination, the uterine wall was slightly thick and edematous with no palpable object or pathologic fluid inside the uterus. Transrectal ultrasonography revealed an edematous uterus with a semen straw-like structure in the left uterine horn (Figs. 1 and 2). The full length of the semen straw was visible on the monitor by moving the transducer across the left uterine horn. The walls of the straw were seen in parallel as white. In order to remove the straw through left-flank laparotomy, the surgical site was prepared for aseptic surgery in a routine manner. The surgical procedure was performed with the animal standing and the anesthesia was provided by an inverted L

block using 2% lidocaine hydrochloride. Following entrance into the peritoneal cavity, the left uterine horn was manipulated for the portion containing the straw. A 2-cm incision was made over the tip of the palpable straw and it was exited by thumb forceps (Figs. 3 and 4). The straw was a 0.5 French sized. The incision was closed by Vicryl No. 2 in double inverted suture pattern. The uterus was replaced in position and the laparotomy incision was closed routinely. The follow-up study for two months revealed no complications. No

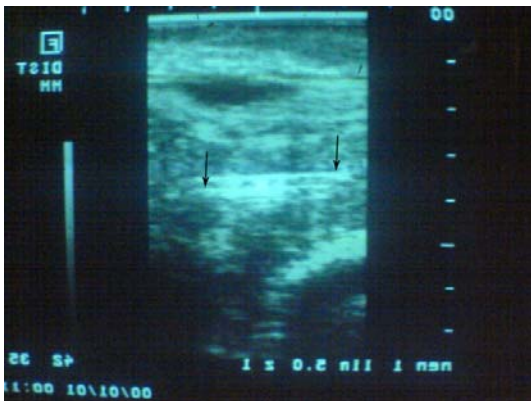


Fig. 1: Ultrasonographic view of the retained semen straw in the uterus of the cow. Note the two white lines in parallel in the uterus (arrows). Image was obtained using a 5-MHz linear probe

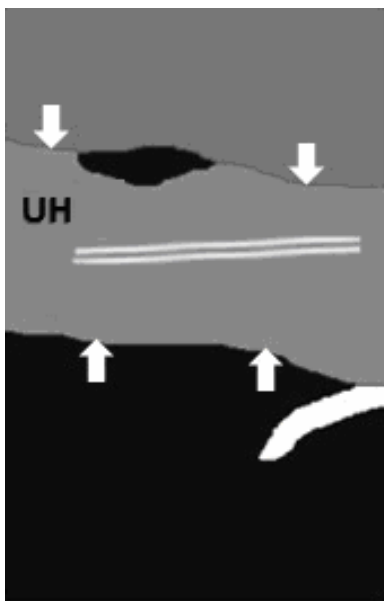


Fig. 2: Schematic presentation of the longitudinal section through the uterine horn (UH; shown by arrow head) of the cow. The semen straw is shown in the uterine lumen

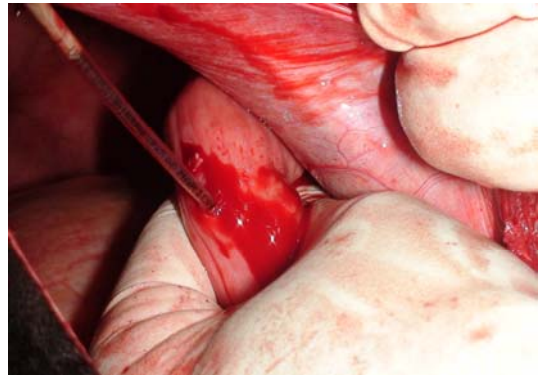


Fig. 3: An incision was made over the tip of the palpable straw and it was exited by a thumb forceps



Fig. 4: Removed straw from the uterus

attempt was made to inseminate the cow after operation as it was not the farmer's plan to get the cow in calf.

Discussion

Over the past two decades, the advent of transrectal ultrasonography has contributed tremendously in the field of bovine reproduction including the diagnosis of ovarian and uterine abnormalities (Fricke and Cliff, 2005). Uterine abnormalities such as endometritis, pyometra, fetal maceration and fetal mummification have been diagnosed using transrectal ultrasonography (Fissore *et al.*, 1986; Ribadu and Nakao, 1999). The present paper reports the successful application of transrectal ultrasonography for diagnosing a retained AI semen straw in the uterus of a dairy cow following routine AI. The parallel white lines observed on the monitor screen were in fact the AI straw left in the uterine horn by an inexperienced AI technician. The retained AI straw in the uterus may result in the

occurrence of the repeat breeding syndrome in the cow. Our observation is consistent with the report published by Klund (1977) who described four repeat breeding cows in which French straw was retained in the uterus during a routine AI program. Of four, two cows did not become pregnant despite repeated inseminations. This report shows the applicability of transrectal ultrasonography to diagnose the retained semen straw in the uterus in the cow.

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