ULTRASONOGRAPHIC ASSESSMENT OF PREGNANCY IN A LHASA APSO BITCH POST-DYSTOCIA: A CASE REPORT

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ABSTRACT

The objective of this work is to report the ultrasonographic evaluation of pregnancy following a dystocia case presented at the Small Animal Clinic Unit of the Veterinary Teaching Hospital, University of Jos, Nigeria. Vital parameters were taken and the bitch restrained on dorsal recumbency. The hair on the abdominal wall was well clipped from the pelvis to the umbilical scar. The clipped region was subsequently cleaned, disinfected, and prepared for ultrasound scanning. The coupling acoustic gel was applied on the probe (5 MHz transducer) of the ultrasound machine to improve image quality, and the bitch was scanned using a Portable Ultrasound Machine, Sonotech EMP -25, Germany. Ultrasonographically five fetuses were detected. The bitch was able to deliver four viable puppies through a normal vaginal means of delivery, after administration of oxytocin but the other fifth fetus which was observed to be dead and oversized could not be delivered per vaginum but was however delivered through fetotomy. This study attempts to present the ultrasonographic diagnosis of pregnancy alongside the intervention taken towards the successful delivery of the puppies. This would add to the body of knowledge in this field and as well help clinicians in clinical procedures associated with reproduction.

Keywords: Dystocia, Evaluation, Lhasa Apso, Pregnancy, Ultrasonography

INTRODUCTION

There have been considerable advances in the use of ultrasonographic imaging modalities for the reproductive tract evaluation in a number of species, including dogs. The early use of ultrasound was mostly done to diagnose pregnancies in the bitch. However, more recently the detailed use of ultrasound imaging in dogs has been documented, and the technology is now gaining a wider application in monitoring fetal development, in estimating the time of gestation/predicting parturition dates and outcomes, in the management of reproductive tract diseases, and as well in supplementing breeding soundness examinations (Long et al., 2022).

As reported by Kumar and Singh (2022), pregnancy in dogs could be diagnosed through the observation of physical and changes, hormonal changes, manual palpation, radiography and ultrasonography.

In all modalities, ultrasonography is the gold standard test for diagnosis of pregnancy as well as fetal viability. Ultrasound is the ideal imaging modality for pregnancy confirmation in bitches. Like all ultrasound modalities, however, its success depends heavily upon the skill and expertise of the operator.

According to O'Neill et al. (2017), dystocia is one of the common problems in female dog breeding program leading to the maternal inability of the bitch to deliver a fetus through the birth canal (Luis and Ana, 2017; Dejneka et al., 2020). The proportion of dystocia in dogs is mostly below 5%; however, it may reach up to 95% in French Bull, Boston Terrier, Chihuahua, and Pug dog breeds.

This study attempts to present the ultrasonographic diagnosis of pregnancy alongside the intervention taken towards the successful delivery of the puppies. This would add to the body of knowledge in this field and as well help clinicians in clinical procedures associated with reproduction.

CLINICAL CASE PRESENTED

A 2-year-old *Lhasa Apso* bitch weighing 5.8 kg was presented at the Small Animal Clinic Unit of the Veterinary Teaching Hospital, University of Jos on the 4th September,

2024 with the complaint of prolonged labour as observed by intermittent straining by the bitch. History revealed that the labour started 48 hours prior to presentation.

PHYSICAL AND CLINICAL EXAMINATION
Physical investigation was carried out on the patient. The bitch was observed to have edematous vulva with persistent moderate dark brown watery vaginal discharge, there was an observed enlarged abdomen, with animal straining and being restless. The rectal temperature was obtained as 40.7˚C, pulse rate of 100 beat/minutes and respiratory rate of 36 cycles/minutes (Table I).

TABLE I: PATIENT'S VITAL PARAMETERS ON THE DAY OF PRESENTATION

Parameters	Patients Values	Reference Values
Temperatures (°c)	40.7	37.5-39.4
Pulse rate (beats/min)	100	70-120
Resp. rate (cycles/min)	36	15-40

CLINICAL FINDINGS
After a thorough clinical evaluation the following features/signs were noted: slightly congested ocular mucous membrane, pyrexia (40.7°C), straining, soiled perineum and foul smelly dark brownish vaginal discharges.

DIAGNOSTIC AND MANAGEMENT PLAN
- To carry out an immediate ultrasonography so as to ascertain the position, number, presentations and viability of the fetus(es)
- To aid a successful delivery via medical intervention

After the vital parameters were taken and clinical examinations done, the bitch was restrained on dorsal recumbency for the scanning procedure.

The hair of the abdominal wall was carefully clipped from the pelvis to the umbilical scar using a razor blade, cleaned and disinfected. Coupling gel was applied on the 5 MHz transducer (probe) of the ultrasound machine to improve image quality.

The probe was then placed on the linea alba just cranial to the pelvic brim. The urinary bladder was visualized and used as the primary landmark, after which the uterus was detected. The uterus was then scanned for the presence of fetuses.

ULTRASONOGRAPHIC RESULT
Figure III shows the images from the ultrasound scan using the Portable Ultrasound Machine, Sonotech EMP -25,

Germany. In addition, fetal heartbeats (fetal viability) were detected using a simple Doppler ultrasound instrument.

Figure I: The gross photograph of the bitch on presentation showing: soiled perineum (red arrow); vulva with blood tinged, dark brownish watery discharges (blue arrow)

Figure II: Gross photograph of the fetotomized parts (dismembered puppy) of the fifth puppy
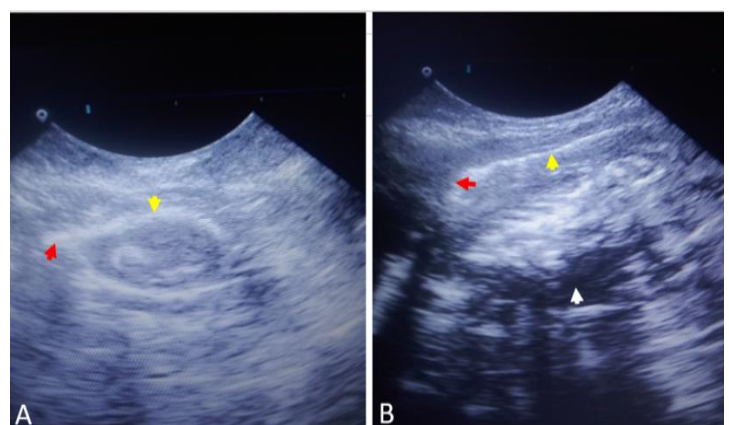

Figure III: Abdomino-pelvic ultrasonographs showing fetuses within the uterus. Note the hyperechoic area (red and yellow arrows) depicting the skull and vertebral column respectively. Note also the anechoic area (white arrow) depicting amniotic fluid

RESULTS/CONFIRMATORY DIAGNOSIS AND MEDICAL INTERVENTION

Five fetuses were detected through ultrasonographic evaluation. The bitch was able to deliver four viable puppies through a normal vaginal means of delivery (after administration of oxytocin 1 ml intravenously) but another fetus which was observed to be dead and oversized hence could not be delivered through the vagina but was however delivered through fetotomy, where the dead fetus was dismembered *in-utero* by the use of a fetotomy knife after a careful procedure involving dilatation of the vagina using forceps.

The bitch was administered analgesic, Inj.10mg Piroxicam 0.3mg/kg (0.1mL), IM x $^2/_7$ Q48hr during the fetotomy process.

Other medications administered include Inj. 200mg Amoxicillin 20mg/kg (0.4mL), IM x $^2/_7$ Q48hr; and Inj. 100mg Vitamin C 20mg/kg (0.8mL), IM x $^2/_7$.

The bitch was then discharged after two days' treatment and close observation alongside the remaining four healthy puppies.

DISCUSSION

Ultrasonographic imaging of the uterus is done trans-abdominally with a sector or linear transducer with a frequency of 5.0 or 7.5 MHz depending upon the patient size (Balaji *et al*., 2018), this is consistent with the procedure in this present case. Ultrasonographic examination usually is performed with the female dog in dorsal recumbency, this procedure was similarly followed in this work.

This present study is consistent with the work of Long *et al*. (2022), where they reported the diagnoses of dystocia in the bitches that had some parturition signs, such as nesting behavior, pollakiuria, swelling vulva, lactating, and obvious radiographic abnormalities (malposition, fetal gas suggestive of fetal death, fetal oversize, fetal death); however, in our present case there is no record of previous history of dystocia or apparent illness or weakness of the bitch.

In this present study, the nature of vaginal discharge seen in this case was dark brown and watery in nature. However, it has been reported that mucous, malodorous, haemorrhagic and white-coloured secretion as well as dark brown vaginal discharge might be conspicuous in some cases (Johnson *et al*., 2001; Bodh *et al*., 2014). In this present case body temperature was outside the normal range (pyrexic), this is similar to the report of Erdogan *et al*. (2019) who reported instance of pyrexia.

According to Kebede *et al*. (2017) fetotomy operations are performed on the dead fetus for the purpose of reducing its size by dividing and removal of certain parts.

In most cases, fetotomy is performed within the uterus of the dam in order to remove the fetus per vaginum (Benesch and Wright, 2001). This procedure is consistent with what was done in this case. The overall objective of this procedure is to remove the dead fetus so as to save the health and life of the bitch against possible infection and discomfort that may arise as a result of the retained fetus.

This study attempts to present the ultrasonographic diagnosis of pregnancy alongside the intervention taken towards the successful delivery of the puppies.

This would add to the body of knowledge in this field and as well help clinicians in clinical procedures associated with reproduction.

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