

Ultrasound in Animals: A Magic Window Inside the Body

¹Shree Ram Karir, ²Alka Bharia, ¹Hemant Kumar Fagana and ³Sachin Chaudhary

**1 Ph.D. Scholar, Department of Veterinary Surgery and Radiology
PGIVER, (RAJUVAS) Jaipur - 302031, Rajasthan*

**2 Ph.D. Scholar, Department of Veterinary Medicine
PGIVER, (RAJUVAS) Jaipur - 302031, Rajasthan*

**3 M.V.Sc., Department of Animal Nutrition
CVAS Navania, (RAJUVAS) Vallabh Nagar - 313601, Rajasthan*

[DOI:10.5281/TrendsInAgri.15242592](https://doi.org/10.5281/TrendsInAgri.15242592)

Abstract

Ultrasound, or ultrasonography, has revolutionized veterinary diagnostics by offering a non-invasive, safe and real-time method of visualizing internal structures in animals. From pregnancy diagnosis to detecting abdominal abnormalities and cardiac evaluation, this imaging modality plays a critical role in both small and large animal practice. This article presents a simplified yet scientific overview of ultrasound's applications in veterinary medicine, highlighting its utility, advantages and growing importance in modern clinical practice.

Introduction

Veterinary medicine has witnessed remarkable advancements in diagnostic imaging and ultrasonography has emerged as one of the most versatile tools in clinical practice. It uses high-frequency sound waves to generate real-time images of soft tissues and internal organs (Thrall, 2017). Unlike X-rays or CT scans, ultrasound does not involve ionizing radiation, making it safer for both the animal and the handler. Its portability, safety and broad applicability make it an essential tool even in field conditions.

Originally limited to referral centers, ultrasound is now increasingly used in rural veterinary setups as well. Its expanding role is transforming diagnostic capabilities and improving case outcomes across species.

Applications of Ultrasound in Veterinary Medicine

1. Reproductive Diagnosis

Ultrasound is widely used to detect pregnancy in domestic animals, especially in cattle, buffaloes, dogs and goats. In bovines, pregnancy can be diagnosed as early as 28–30 days post-



breeding (Singh et al., 2012). It also helps assess foetal viability, monitor embryonic development and detect reproductive disorders like ovarian cysts or pyometra (Radostits et al., 2007).

2. Abdominal Imaging

Sonography provides detailed imaging of abdominal organs such as the liver, kidneys, spleen, urinary bladder, intestines and uterus. Conditions like hepatic abscesses, nephritis, urolithiasis, intestinal blockages or fluid accumulation can be visualized efficiently (Nyland and Mattoon, 2015).

3. Cardiac Evaluation (Echocardiography)

Ultrasound of the heart, known as echocardiography, helps in the evaluation of cardiac function and structure. It is particularly useful in diagnosing valvular disorders, cardiomyopathy and pericardial effusion in dogs and cats (Thrall, 2017).

4. Thoracic Imaging

Although lungs filled with air limit sonographic imaging, ultrasound is useful for diagnosing pleural effusion, thoracic abscesses, or pericardial fluid accumulation (Nyland and Mattoon, 2015).

5. Soft Tissue and Musculoskeletal Disorders

Tendon injuries, soft tissue swellings, abscesses and hematomas are effectively visualized using high-frequency linear probes (Kumar and Saini, 2010). This is especially useful in equine and large animal practice.

6. Ultrasound-Guided Interventions

Guided procedures such as fluid drainage, abscess tapping and needle biopsy are done safely and accurately under ultrasonographic visualization, thereby reducing complications (Singh et al., 2012).

Use in Large Animal Practice

In bovines, ultrasound is primarily used for reproductive management. It helps identify anestrus, monitor follicular development, detect uterine infections and confirm pregnancy — all of which contribute to improved fertility rates in dairy herds (Radostits et al., 2007). Portable ultrasound machines have made this technology accessible to field veterinarians, even in remote areas.

Advantages of Ultrasonography

- Non-invasive and painless procedure
- No exposure to ionizing radiation
- Provides real-time imaging
- Portable and suitable for field conditions
- Applicable across all species

These benefits make ultrasonography an essential component of modern veterinary diagnostics.



Conclusion

Ultrasound is undeniably a “magic window” into the animal’s body. It provides rapid, safe and detailed information that helps veterinarians make accurate diagnoses and plan effective treatments. As the technology becomes more affordable and accessible, it is reshaping the landscape of veterinary healthcare, both in small animal clinics and large animal field settings. For veterinary students and practitioners, proficiency in ultrasonography is a key to delivering better, faster and more humane care.

References

- Thrall, D.E. (2017). *Textbook of Veterinary Diagnostic Radiology*. 7th Ed. Elsevier.
- Nyland, T.G. and Mattoon, J.S. (2015). *Small Animal Diagnostic Ultrasound*. 3rd Ed. Elsevier.
- Radostits, O.M., Gay, C.C., Hinchcliff, K.W. and Constable, P.D. (2007). *Veterinary Medicine: A Textbook of the Diseases of Cattle, Horses, Sheep, Pigs and Goats*. 10th Ed. Saunders.
- Kumar, A. and Saini, N.S. (2010). Ultrasonographic diagnosis of some common surgical affections in bovines. *Indian Journal of Veterinary Surgery*, 31(1), 50–52.
- Singh, K., et al. (2012). Use of ultrasonography in veterinary practice: A review. *Indian Journal of Animal Sciences*, 82(11), 1354–1361.