For patients diagnosed with non-muscle invasive bladder cancer (NMIBC), close cystoscopic surveillance is advocated to detect cancer recurrence early and possibly to prevent or delay progression of disease. However, adherence to follow-up is arduous and the actual monitoring often deviates from recommended guidelines.

Realview Medical Ltd has developed a novel concept for monitoring non-invasive bladder cancer: a wireless capsule, delivered into the bladder allowing high-quality image of the bladder cavity upon demand.

The purpose of our trial was to demonstrate the safety and feasibility of this technology in a sheep.

Materials and methods: A unique technology was developed to prevent biofilm encrustation. The technology involves a semi-permeable silicone inflated with mineral oil. The slow diffusion of oil prevents formation of biofilm.

A capsule was inserted to a sheep for a 5 month period.

Vital signs, urinary cultures and animal behavior were monitored.

Results: During follow up urinary cultures remained sterile. Animal behavior suggested that the presence of capsule inside did not influence the normal voiding pattern.

After 5 month the sheep was sacrificed and the device retrieved. The surface of the capsule was analyzed using a Scanning Electronic Microscope. No evidence of biofilm encrustation was observed.

Conclusions: This preliminary trial in an animal model demonstrates the safety and feasibility of wireless capsule cystoscopy. Further research and development are needed to fully appreciate the potential benefit of this novel revolutionary concept in human subjects.