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EXPERIMENTAL STUDY OF SUBMUCOSAL INJECTION OF N-BUTYL-2-CYANOACRYLATE [HISTOACRYL] IN THE URINARY BLADDER AS A BULK ENHANCING AGENT [CANINE MODEL], (EARLY REPORT)

Hypothesis/ aims of study:

N-butyl-2-cyanoacrylate (NBCA) is a tissue adhesive, which hardens by a chain growth polymerization reaction when exposed to weak bases such as water, blood or alcohol. It has been used as a tissue adhesive in a variety of surgical subspecialties without recorded serious or toxic side effects. The purpose of this study is to evaluate the usefulness of NBCA as a bulk-enhancing agent when injected submucosally in the urinary bladder of dogs.

Study design, material and methods:

In 6 mongrel dogs, the bladder was opened through a midline incision. Half cc of NBCA was injected submucosally in the upper right lateral wall and ½ cc saline was injected in the upper left lateral wall as a control. Clinical monitoring was performed for all animals. Dogs were followed-up by abdominal U/S every 15 days to evaluate the size of injected material for 3 months, then all animals were put to sleep for post-mortal examination.

Results:

No significant post-operative morbidity was noted. Sonographically, no remarkable changes in the size of solidified NBCA swellings were observed through the follow-up period compared with absence of control swellings. Histologically, NBCA was found to induce minimal inflammatory tissue reaction around it while the overlying mucosa was intact.

Interpretation of results:

Submucosal injection of NBCA causes immediate and permanent submucosal swelling. This bulk formation can be used to increase the resistance at the bladder neck region. Therefore, in our opinion, NBCA injection warrants a trial of application in man in the treatment of urethral intrinsic sphincteric deficiency and other conditions treatable by injectable materials.

Concluding message:

NBCA could be useful, safe and inexpensive injectable bulking agent.