

ULTRASONOGRAPHIC ASSESSMENT OF EARLY SUBCLINICAL CATHETER-RELATED CHANGES OF THE JUGULAR VEIN IN HOSPITALIZED HORSES

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Early detection of catheter-related complications is desirable as catheter removal from an affected vein may prevent or reduce the severity of vascular disease. The aim of this study was to detect early subclinical vascular changes by repeated jugular vein ultrasonography. Fifteen horses, catheterized with a 14G polyurethane Milacath® (MILA International, Kentucky) (n=5) or 14G polyurethane Cavafix® Certo (Braun Melsungen AG, Germany) (n= 10) catheter after colic surgery were included. Repeated ultrasonography (Vivid IQ, GE Healthcare, Zaventem) of the entire jugular vein to screen for presence of thrombi and vascular abnormalities was performed using a 9-12 MHz linear transducer (9L-RS, GE Healthcare) starting 12-24h after catheter placement with a 48h interval until catheter removal and 12-24h after catheter removal with a 48h interval until leaving the hospital. At the level of insertion, distal outer catheter and distal inner catheter (Cavafix®) the medial jugular vein wall thickness was measured. Results were analyzed using repeated measures. Mean wall thickness at the level of insertion, distal outer and inner catheter ranged between 0.56 and 1.20 mm but did not increase significantly over time (p=0.770, 0.425, 0.157, respectively). However in 60%(9/15) of the horses subclinical changes could be visualized. Thrombi were present in 40%(6/15), thickened venous valves in 33%(5/15) and a fibrin sleeve partially covering the catheter in 13%(2/15) of the horses. Results indicate that repeated jugular vein ultrasonography can be used to detect early catheter-related changes and might therefore be useful to reduce the incidence and severity of thrombophlebitis in hospitalized horses.

Keywords: Phlebitis - Thrombus – Wall thickness