

PULMONARY BALLON VALVULOPLASTY IN 95 DOGS: EFFECT OF VALVE MORPHOLOGY ON IMMEDIATE AND LATE OUTCOME

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Pulmonic stenosis (PS) is one of the most common congenital heart defects in dogs. Pulmonary balloon valvuloplasty (PBV) is now the treatment of choice for PS in humans as in dogs. In human PBV has gained acceptance as the first option in the management of PS in any age group (newborn, children, adult) and any valve morphology (typical or dysplastic). Valve morphology, hinge point diameter and immediate higher residual gradient are identified as the most significant independent predictors of long term results. Concerning dogs, only few studies analyzed the importance of valve morphology as selection criteria for PBV. The first purpose of this retrospective study is evaluating if valve morphology is an important factor for successful PBV as it has been confirmed for human.

PBV was performed in 95 dogs (75 type A PS, 16 a type B and 4 intermediate type). The mean peak Doppler gradient before PBV was 124 mmHg (± 40) in dogs with type A (range 45-227 mmHg) and 133 mmHg (± 30) in dogs with type B (range 65-182 mmHg). The mean peak Doppler gradient after the PBV (24h) was for the type A 49 mmHg (± 21) (range 15-104 mmHg) and for the type B 68 mmHg (± 24) (range 35-109 mmHg), documenting a significant reduction of gradient in both groups ($P < 0,0001$). The mean peak Doppler gradient at 1 year was 55 mmHg (± 20) in dogs with type A (range 15-110 mmHg) and 73 mmHg (± 31) in dogs with type B (range 25-119 mmHg), confirming a persistent gradient reduction in both groups ($P < 0,0001$). The mean pressure gradient after the procedure at 24h ($P < 0,001$) and at 1 year ($P < 0,05$) between group A and B resulted to be lower in type A, suggesting better results. The PBV was considered successful (more than 50% reduction in pressure gradient from baseline) in 65 dog with type A (90%) and in 7 dogs with PS type B (54%). The PBV was performed without significant complications in 93% of dogs (88 dogs: 71 with type A, 13 with type B and 4 with intermediate type).

Our study allows the following conclusions: PBV is effective in type A and B PS, furthermore PBV is more effective in type A. In human literature similar results are reported. The PBV of patient with dysplastic valve was less effective (61,11%) when compared with those with typical PS (80,59%). Despite the success rate was lower in the dysplastic group, PBV is still considered the first treatment option in both types of PS. Finally PBV in type B (or dysplastic) may avoided or delayed the need of surgery and provided a good long outcome in dogs as it occurs in humans.