

ABSTRAK

KOMPARASI HISTOLOGI DAN HISTOMORFOMETRI TESTIS NORMAL DAN TESTIS *CRYPTORCHIDISM* BILATERAL PADA SAPI PASUNDAN

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Sapi pasundan merupakan salah satu jenis sapi potong lokal Indonesia yang berasal dari Jawa Barat dan memiliki potensi besar untuk mendukung penyediaan daging sebagai sumber protein hewani. Studi terkait organ reproduksi diperlukan untuk mendukung pemuliaan dan peningkatan sapi lokal termasuk sapi pasundan. Beberapa abnormalitas pada sistem reproduksi dapat terjadi, salah satunya yaitu *cryptorchidism*. Penelitian ini bertujuan untuk membandingkan karakteristik histologi dan histomorfometri testis sapi pasundan normal dan testis yang mengalami *cryptorchidism*. Penelitian ini menggunakan 8 sampel testis sapi pasundan yang terdiri dari 4 testis normal dan 4 testis *cryptorchidism*. Testis difiksasi dengan larutan paraformaldehid 4% dilanjutkan dengan proses pembuatan preparat histologi dengan metode paraffin dan pewarnaan hematoxylin-eosin. Pengamatan histologi dianalisis secara deskriptif. Histomorfometri meliputi ukuran diameter tubulus seminiferus (μm), tebal lapisan sel epitel germinal (μm), jumlah sel germinal per luas bidang pandang, jumlah sel sertoli per luas bidang pandang, dan diameter sel spermatogonia (μm) diukur dan dihitung dengan *software ImageJ* dan dianalisis secara kuantitatif. Histologi testis sapi pasundan normal memiliki tubulus seminiferus dengan sel-sel spermatogenik pada semua tingkat perkembangan sedangkan histologi testis sapi *cryptorchidism* menunjukkan ruang antar tubulus seminiferus yang lebar. Histomorfometri kedua testis menunjukkan perbedaan signifikan pada jumlah sel germinal dan sel sertoli antara testis *cryptorchidism* yang lebih sedikit dibandingkan testis normal. Kesimpulan dari penelitian berdasarkan histologi dan histomorfometri testis, kondisi *cryptorchidism* menunjukkan terganggunya proses spermatogenesis yang tampak pada perubahan yang teramati dibandingkan dengan testis normal. Penelitian ini diharapkan dapat mendukung dokumentasi histologi organ genital jantan sapi pasundan dan memberikan informasi komparasi pada kondisi normal dan *cryptorchidism*.

Kata kunci: *cryptorchidism*, histologi, histomorfometri, sapi pasundan, testis.

ABSTRACT

COMPARISON OF HISTOLOGY AND HISTOMORPHOMETRY OF NORMAL TESTES AND BILATERAL CRYPTORCHID TESTES IN PASUNDAN CATTLE

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Pasundan cattle is a local Indonesian beef cattle breed originating from West Java, known for its significant potential to support meat supply as a source of animal protein. Studies related to reproductive organs are essential to enhance breeding and improve local cattle, including pasundan cattle. Various abnormalities can occur in the reproductive system, one of which is cryptorchidism. This research aims to compare the histological and histomorphometry characteristics of normal pasundan cattle testes and those affected by cryptorchidism. Eight samples of pasundan cattle testes, consisting of four normal testes and four cryptorchid testes, were used in this study. The testes were fixed with 4% paraformaldehyde solution, followed by the preparation of histological slides using the paraffin embedding method and staining with hematoxylin-eosin. Histological observations were analyzed descriptively. Histomorphometry included measurements of seminiferous tubule diameter (μm), thickness of the germinal epithelial cell layer (μm), number of germinal cells per unit area of the visual field, number of Sertoli cells per unit area of the visual field, and diameter of spermatogonia cells (μm), all measured and calculated using ImageJ software and analyzed quantitatively. The histology of normal pasundan cattle testes exhibited seminiferous tubules containing spermatogenic cells at all stages of development, whereas the histology of cryptorchid testes showed widened intertubular spaces. Histomorphometric analysis of both testes revealed a significant difference in the number of germinal cells and Sertoli cells, with fewer cells in cryptorchid testes compared to normal testes. Based on histological and histomorphometric findings, cryptorchidism is associated with disrupted spermatogenesis, as reflected by the observed changes compared to normal testes. This study is expected to support the documentation of the histology of male genital organs in pasundan cattle and provide comparative information between normal and cryptorchid conditions.

Keywords: cryptorchidism, histology, histomorphometry, pasundan cattle, testes.