

**PERUBAHAN URETER IPSILATERAL DAN KONTRALATERAL
1-4 MINGGU PASCA OBSTRUKSI URETER UNILATERAL
BAGIAN MEDIAL DAN DISTAL**

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Intisari

Obstruksi ureter unilateral dapat terjadi pada manusia dan hewan. Lokasi obstruksi dapat terjadi di bagian proksimal, medial, dan distal ureter. Obstruksi menyebabkan abnormalitas ureter ipsilateral berupa hidroureter. Salah satu metode untuk mengetahui perubahan yang terjadi melalui pemeriksaan ultrasonografis. Penelitian dilakukan untuk mengetahui perubahan ureter ipsilateral dan kontralateral pada 1-4 minggu pasca obstruksi ureter unilateral bagian medial dan distal dengan pemeriksaan ultrasonografis, makroskopis, histopatologis, dan Indeks Hidroureter-Hidronefrosis (IHH). Sejumlah 36 ekor tikus putih *Sprague Dawley* betina umur 3 bulan dibagi menjadi 3 kelompok perlakuan yang masing-masing berjumlah 12 ekor. Kelompok I sebagai kontrol mendapat perlakuan laparotomi. Kelompok II mendapat perlakuan laparotomi dengan ligasi ureter kanan bagian medial dan kelompok III dengan ligasi ureter kanan bagian distal. Pada 1-4 minggu pasca operasi, 3 ekor tikus diambil secara acak dari setiap kelompok. Tikus dianestesi umum untuk dilakukan pemeriksaan USG dengan frekuensi 10 MHz. Kemudian dieuthanasi dan dienkapsi untuk diambil ginjal dan ureter. Penimbangan ginjal dan ureter sebelum dan sesudah diambil cairan yang terakumulasi di dalamnya untuk menghitung IHH. Sampel ureter diambil untuk dibuat preparat histopatologi. Hasil pemeriksaan makroskopis dan histopatologis dianalisis secara deskriptif komparatif dengan melihat perubahan yang terjadi. Semua hasil pengukuran dianalisis secara statistik menggunakan analisis variasi pola faktorial 3x4. Hidroureter ipsilateral terjadi sejak 1 minggu pasca ligasi dan dapat teramati melalui pemeriksaan USG dengan probe linear frekuensi 10 MHz, sedangkan ureter kontralateral dan ureter normal tidak dapat terdeteksi pada 1-4 minggu pasca perlakuan. Perubahan bentuk, warna, dan ukuran ureter ipsilateral teramati dengan jelas pada pengamatan makroskopis. Pengamatan histopatologis menunjukkan perubahan struktur dan penipisan lapisan penyusun dinding ureter ipsilateral pasca ligasi. Peningkatan IHH ipsilateral terjadi pada 1-4 minggu pasca ligasi. Perbedaan lokasi ligasi tidak memberikan pengaruh signifikan terhadap perubahan tersebut. Adanya obstruksi ureter unilateral tidak memberikan dampak terhadap ureter kontralateral.

Kata kunci : ureter, obstruksi ureter unilateral, ultrasonografi, histopatologi, Indeks Hidroureter-Hidronefrosis (IHH)

**IPSILATERAL AND CONTRALATERAL URETERAL CHANGES
AT 1-4 WEEKS AFTER MEDIAL AND DISTAL
UNILATERAL URETER OBSTRUCTION**

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Abstract

Unilateral ureter obstruction can occurs in human and animals. The location of obstruction can occur at the proximal, medial, and distal ureter. Effect of ureteral obstruction is a hydroureter. One of methode to determine the ureteral changes is an ultrasonography examination. This research studied about ipsilateral and contralateral ureteral changes by an ultrasonography, macroscopic, histopathological, and Hydroureter-Hydronephrosis Index (HHI) at 1-4 weeks after medial and distal unilateral ureter obstruction. Thirty six female *Sprague Dawley* rats were used in this research. We divided rats into 3 Groups, twelve rats each group. Group I as control with laporotomy surgery. Group II get laparotomy and right ureteral ligation on the medial part. Group III get laparotomy and right ureteral ligation on the distal part. At 1-4 weeks after surgery, we taken randomly 3 rats from each group and we make ultrasound examination under anaesthesia. After that the rats euthanized and necropsied to collect the gross pathological finding and measure the real size of the kidneys and ureters with vernier caliper and micro scale. The HHI was measured a difference in weight between the kidney ureter sections after death and that of the sections after the removal of internal fluid. Ureter samples taken for histopathological made preparation. Macroscopic and histopathological examination results were analyzed descriptively comparative look at the changes that occur. All measurement results were statistically analyzed using analysis of variation 3x4 factorial design. Hydroureter occured at 1 weeks after ureteric ligation and can detected by ultrasonography examination with 10 MHz linear probe. Whereas contralateral and normal ureter did not detect at 1-4 weeks after treatment. The macroscopical exam showed that changes in the shape, color, and size of ipsilateral ureter. Histopathological observations showed changes in the structure and the depletion layer ipsilateral ureter wall constituent post-ligation. The HHI ipsilateral sections increased 1-4 weeks after ureteric ligation. Differences ligation site did not a significant effect on the change. Unilateral ureteral obstruction did not affect to the contralateral ureter.

Key words : Ureter, unilateral ureter obstruction, ultrasonography, histopatology, Hydroureter-Hydronephrosis Index (HHI)