UNPALPABLE UNDESCENDANT TESTES MANAGEMENT EVALUATION IN CIPTO MANGUNKUSUMO HOSPITAL

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ABSTRACT

Objectives: *This study is to evaluate imaging modalities used in unpalpable undescended testes (UDT) patient at our centre. We evaluate the data descriptively.* ***Material & methods:*** *This is a descriptive and retrospective study. Data was taken from medical record in Cipto Mangunkusumo Hospital from January 2010 until June 2014. Sampling method is total sampling. Inclusion criteria for this study was unpalpable UDT patients at Urology Department Cipto Mangunkusumo Hospital, whereas patients with incomplete data and have XX chromosomes were excluded.* ***Results:*** *Mean ages in this study was 9.35 years old (7 month to 41 year old). Diagnostic tools was not performed in half of the patients. Abdominal ultrasound was performed in 9 patients (34.6%), and 4 patients with CT-Scan. We found that most of patients were unilateral UDT (57.7%). Bilateral UDT was found in 11 patients (42.3%). Twenty one patients undergo laparoscopic orchidopexy (80.8%). There were 7 patients undergo full laparoscopy orchidopexy. Fowler Stephen technique applied to 4 patients, and eleven patients underwent inguinal exploration and orchidopexy. Laparoscopic biopsy was performed in 4 patients and agenesis of the testis was found in one patient. There are 13 cases with other abnormalities; hypospadias (38.5%), DSD 46 XY (53.8%), and testicular tumor (7.7%).* ***Conclusion:*** *Unpalpable UDT is adequately diagnosed by history and physical examination. Half of our patient in this study were not performed additional examination such as ultrasound, CT-Scan, and MRI for diagnostic tools and directly underwent laparoscopic orchidopexy. The best management of unpalpable UDT is laparoscopic orchidopexy.*

Keywords: *Undescended testes, diagnostic tools, management, laparoscopy.*

ABSTRAK

Tujuan: *Mengevaluasi alat diagnosis tambahan, tatalaksana undescended testes (UDT) tidak terpalpasi dan laparoskopi yang diperlukan untuk membantu menegakkan diagnosis UDT.* ***Bahan & cara:*** *Desain penelitian ini adalah deskriptif, retrospektif dengan melihat data dari rekam medik Departemen Urologi RSCM kurun waktu Januari 2010 – Juni 2014. Teknik pengambilan sampel yang digunakan adalah total sampling. Kriteria inklusi pada penelitian ini adalah pasien UDT tidak terpalpasi di Departemen Urologi RSCM, sedangkan kriteria eksklusi adalah pasien dengan data tidak lengkap dan pasien dengan hasil pemeriksaan kromosom XX.* ***Hasil:*** *Rerata usia pasien pada penelitian ini adalah 9.33 tahun dengan rentang usia 7 bulan hingga 41 tahun. Sebagian besar pasien UDT tidak terpalpasi tidak memerlukan pemeriksaan tambahan; 12 orang (52.2%). Sedangkan pemeriksaan USG abdomen dilakukan pada 9 orang pasien (34.6%) dan CT Scan pada 4 orang pasien. Sebagian besar pasien UDT tidak terpalpasi adalah pasien UDT unilateral (57.7%). UDT bilateral ditemukan pada sekitar 11 pasien (42.3%). Dua puluh satu pasien menjalani orkiopeksi per laparoskopi (80.8%). Terdapat 7 orang pasien yang menjalani orkiopeksi per-laparoskopik secara keseluruhan. Teknik Fowler-Stephen diterapkan pada 4 pasien dan 11 pasien menjalani eksplorasi inguinal dan orkidopeksi. Biopsi per laparoskopi dilakukan pada 4 pasien dan ditemukan agenesis testis pada 1 pasien. Pada kasus ini ditemukan 13 kelainan penyerta dengan proporsi sebagai berikut: hipospadia (38.5%), DSD 46 XY (53.8%), dan tumor testis (7.7%).* ***Simpulan:*** *UDT tidak terpalpasi cukup didiagnosis dengan anamnesis dan pemeriksaan fisik. Pada diskusi, kami kemukakan bahwa umumnya pemeriksaan tambahan radiologi seperti USG, CT-Scan dan MRI tidak diperlukan untuk menegakkan diagnosis. Tatalaksana terbaik adalah dengan laparoskopi orkidopeksi dengan temuan paling banyak pada intraoperatif.*

Kata kunci: *Undescended testes, alat diagnosis, tatalaksana, laparoskopi.*

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INTRODUCTION

Undescended testes (UDT) is one of the most common urogenital abnormality occured in male. Undescended testes or cryptorchismus happened in 1-3% of a term neonates and 30% of preterm neonates.[1] Babies born with cryptorchismus have an increased risk of infertility and testicular malignancy.[2] Fertility parameter will continue to decrease as long as the testes is not in the scrotum while the risk of testicular cancer will decrease if the patient underwent orchidopexy before puberty. Orchidopexy is recommended before the patient reach age 12 months old to prevent permanent testicular abnormality and to decrease the risk of testicular cancer.

Undescended testes could be found anywhere in the physiological tract of testes descent up to retroperitoneal area around kidney. Undescended testes is different from ectopic testes, where testes is found outside the physiological tract of testes descent, thus the testes is in abnormal location (ectopic). Physical examination is the main diagnostic tool in undescended testes and to determine the location of testes. Approximately 70% of all undescended testes are palbable, while the remaining 30% could not be localized by physical examination.[1,3]

Imaging modality has a role in determining this unpalpable testes location. Testes should be accurately located before surgery to limit surgery duration in undescended testes patients and to prevent surgery in patients who does not have testes. However, benefit-risk evaluation have to be done before imaging procedure. Ultrosound, CT scan, and MRI are common imaging techniques to diagnose undescended testes.

Ultrosound examination is not emitting radiation and uninvasive. This examination is the most commonly used imaging modality to diagnose undescended testes. Approximately 67% of paediatrician request ultrasound evaluation before surgery despite one study shows that there is 10% of false positive rate, misinterpreting gubernaculum as a testes.[1] Ultrasound examination has 45% sensitivity and 78% specificity.

There's still 49% risk of invisible intra-abdominal testes in ultrasound examination.[1,4,5] Patients who decided not to have a surgery because of this result, will have an increased risk of testicular cancer. It is difficult to do a routine examination of intraabdominal testis, mostly patient with testicular cancer came with a late stage disease.[6]

CT-scan is not recommended for regular use because malignancy risk after radiation. MRI is superior than CT-scan because this modality is not using radiation. However, the disadvantages of MRI are expensive and need more adequately anesthesia preparation. Although MRI has sensitivity 86% and specificity 79%, it cannot rule out unpalpable UDT diagnosis because invisible testis doesn't mean testis does not exists.[1,5]

Laparoscopy is the only modality that can affirm UDT diagnosis or exclude intraabdominal abnormality, inguinal and unpalpable testis.[5] The advantages of laparoscopy compare to open surgery in unpalpable UDT are accurate anatomical testicular position and viability, also optimal access serta akses optimal to the core problems of surgery.[7] Nevertheless, hormonal therapy (hCG, gonadotropin releasing hormone (GnRH) or LH-releasing hormone (LHRH)) can be used before the patient underwent surgery.[8,9]

OBJECTIVE

The purposes of this study are to evaluate additional diagnostic tools and management of unpalpable UDT. In particular, laparoscopy is needed to establish the diagnosis of UDT.

MATERIAL & METHOD

This was a descriptive, retrospective study. Data were obtained from medical records of the Department of Urology Cipto Mangunkusumo Hospital, January 2010 until June 2014. Inclusion criteria was npalpable UDT patients in Department of Urology Cipto Mangunkusumo Hospital. Exclusion criteria were incomplete data and patient with XX chromosome result. A total sampling method was preferred.

RESULTS

The mean age of patients in this study (n = 26) was 9.3 years old, range of ages 7 months to 41 years. Most of unpalpable UDT patients are unilateral (57.7%), thirteen patients. Bilateral UDT was found in eleven patients (42.3%). Table 1 shows twelve comorbid abnormalities, proportion: five hypospadia patients (38.5%), seven DSD 46 XY

patients (53.8%), and a testicular tumor patient (7.7%).

Table 1. Unpalpable UDT comorbid abnormalities.

Comorbid abnormalities	Total (n)	Percentage (%)
Hypospadia	5	38.5
DSD 46 XY	7	53.8
Testicular tumor	1	7.7
Total	13	100

Table 2. Unpalpable UDT management evaluation.

Profile	Total	Percentage (%)
Diagnostic tool		
None	13	50.0
Ultrasound	9	34.6
CT Scan	4	15.4
Management		
Laparoscopic orchidopexy	21	80.8
Diagnostic laparoscopy	1	3.8
Biopsy laparoscopy	4	15.4
Total	26	100

Table 2 shows that most of unpalpable UDT patients does not require additional examination; thirteen patients (50.0%). Ultrasound was conducted in 9 patients (34.6%), Besides, CT Scan was conducted in four patients (15.4%). Meanwhile, the management of unpalpable UDT was performed in twenty one patients laparoscopic orchidopexy (80.8%), one patient (3.8%) have done diagnostic laparoscopy with the results testicular agenesis and 4 patients (15.4%) have done laparoscopic biopsy. Out of nine patients underwent ultrasound, only five patients have a complete data. There are no testis found in inguinal or scrotum in all five patients. Whereas, in all two patients underwent CT-Scan, testis is located intraabdominal. Unfortunately, there are one patient who underwent CT-scan and have incomplete data.

From biopsy laparoscopy cases, all patients were diagnosed Disorder of Sex Development (DSD). In all four patients, were found hypospadia and unpalpable UDT. Therefore, chromosomal examination is required for diagnosis.

In unpalpable UDT patients (n = 4) that treated by Fowler-stephen technique, the age is relatively older (9 year old, 15 year old, 35 year old).

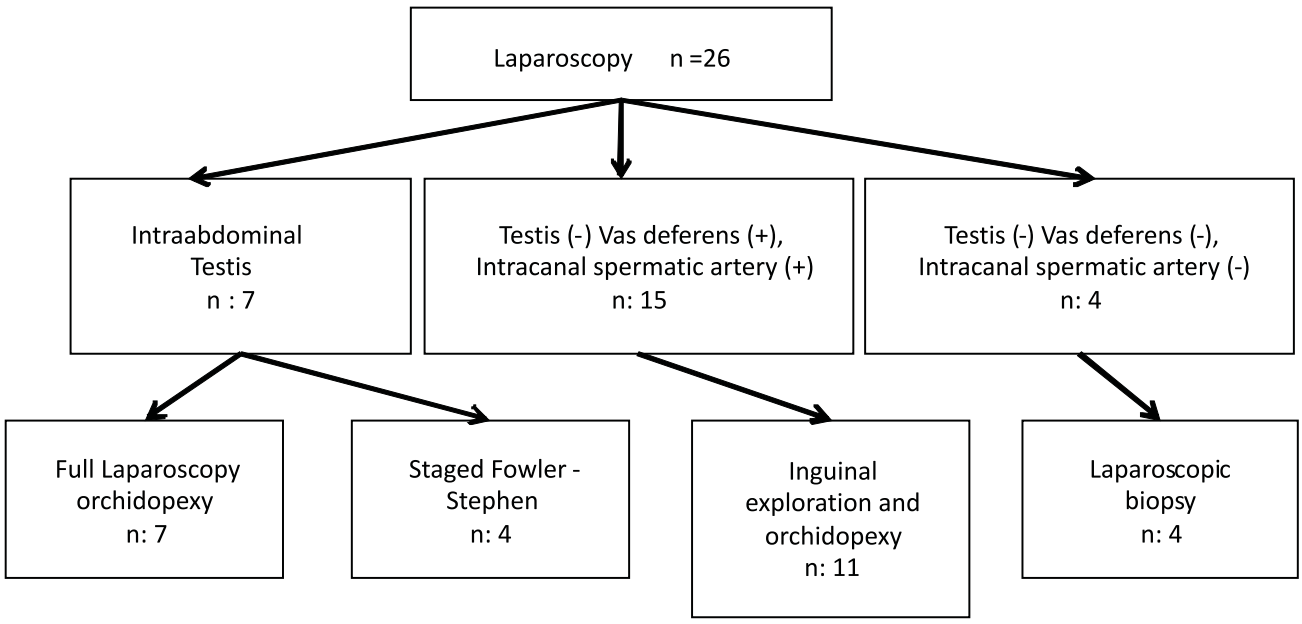

Chart 1. Unpalpable UDT laparoscopy profile in RSCM.

DISCUSSION

Clinically, Undescendant testis (UDT) is inconsistency of testicular position in the scrotum. UDT can be divided into palpable UDT and unpalpable UDT. Variation of testicular location is in intrabdomen, inguinal, or intrascrotal improperly. This disorder is the most common congenital urogenital abnormalities that occur in boys, 1-3% in a term children and 15-30% in children born prematurely. 10-20% UDT cases are unpalpable UDT.[10,11] Prevalence of unilateral UDT is about 90% and 10% bilateral.[12,13] UDT is often associated with impaired fertility, inguinal hernia, and an increased risk of testicular cancer incidence.[14,15] Almost half of unpalpable UDT patients located in intraabdominal cavity.[16,17]Most of unpalpable UDT patients are diagnosed without additional examination (13 patients). Tasian et al revealed that radiological examination is not used as a routine evaluation for UDT patients.[18] According to Tasian explanation, Abbas et al found 26 unpalpable testis in 22 patients. Sonography only detect 6 from 26 testis (23%).[19] Therefore, ultrasound is not a major examination done for UDT diagnostic.

However, in Nigeria, ultrasound is used as UDT preoperative evaluation tools (86.7% from 94.2% intraoperatively diagnosed).[20] In this study, more than half of the patients did not have an ultrasound and CT scan as an additional screening tool for diagnosing UDT.Laparoscopy plays an important role in the diagnosis and management of unpalpable testis. Laparoscopy provides 66% successful rate from unpalpable 42 testis and found intraabdominal.[21] In our study, all of the patients treated laparoscopically. Almost half of the patients done laparoscopy for diagnostic purposes.

We assume that ultrasound is not required before laparoscopy. Literature shows that laparoscopy done for UDT diagnostic and treatment. According to our three literatures, two of them stated that radiological examination (ultrasound, CT-Scan) are not required for UDT patient routine evaluation. While in other literature, disclosed that laparoscopic examination is an important modality in the diagnosis and management of UDT.

From our study, stated that ultrasound does not provide meaningful results, the data was obtained from 5 patients did not show the testes in the scrotum or inguinal. Conversely, in two patients who underwent CT-Scan, testis is found intraabdomen. The following results indicate that the CT scan can be one of the main UDT diagnostic modality. However, previous studies suggested that radiological examinations such as ultrasound, CT scan, and MRI are not a routine evaluation tool for UDT patients.

There are many laparoscopy technique performed as a treatment of UDT. In our study, Fowler-Stephens technique is performed in three patients with relatively older age (9 year-old, 15 year-old, 35 year-old). Generally, this technique was performed to UDT patients with high intraabdominal testis position (related to older age).[22]

In addition, the study also revealed UDT patient comorbid disorders. The results obtained show that half of the cases are DSD. Rajfer dan Walsh publish that approximately 27% DSD patients have comorbid abnormalities, such as hypospadia and UDT.[23]

CONCLUSION

Unpalpable UDT is adequately diagnosed by medical history and physical examination. Generally, in discussion we explained that additional examination such as ultrasound, CT-Scan, and MRI are not required for diagnostic tools. The best management of unpalpable UDT is laparoscopic orchidopexy.

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