

Characteristics and Management of Testicular Torsion in a Major Indonesian Tertiary Hospital

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Abstract—Testicular torsion is one of the most common urological emergencies in the world. Improper recognition and management of the disease could lead to irreversible damage to the testicular organ. Currently, there has not been any studies in Indonesia reporting the characteristics of testicular torsion. Therefore, we aimed to evaluate the clinical profile of testicular torsion patients in Dr. Soetomo general hospital over the past four years. This is a retrospective descriptive study evaluating testicular torsion patients admitted to the Urology ward of Dr. Soetomo General Hospital between January 2016 and February 2020. Relevant collected data included: Patient's age, Location of torsion, pain onset, history of trauma, and management. A total of 17 patients were admitted to the hospital in the past 4 years. The highest number of cases occurred among patients aged 10 to 12 years old (47%). Most patients suffered from pain in their left testicular area (76.5%) and came to the emergency room six hours after the pain had started (82.4%). Most patients were treated with orchidectomy of the affected testis and orchidopexy of the contralateral testis due to unsalvageable testis (82.4%). Testicular torsion cases in Dr. Soetomo general hospital mostly occur among adolescence with the left side affected among the majority of cases. Most patients came after six hours, which led to irreversible damage requiring ipsilateral orchidectomy and orchidopexy of the affected contralateral side.

Keywords: *testicular torsion, profile, testis*

1. Introduction

Testicular torsion is one of the most common urological emergencies in the world. It is estimated that there are 3.8 cases in 100.000 males under the age of 18 years old every year [1]. Around 4 to 8% of cases were preceded with trauma, however the vast majority was not associated with any inciting factors [2]. The pathophysiological process involves spermatic cord and testis rotation relative to the axis, leading to an obstruction of the blood supply, ending in ischemia and necrosis [3]. It is necessary to properly recognize testicular torsion among patients coming with pain in the testicular area. Apart from understanding the natural clinical signs and symptoms, epidemiological characteristics are also important for physicians. Local data regarding testicular torsion would help in terms of developing promotive, preventive, and curative management strategies as well as research purposes [4]. Currently, there has not been any studies in Indonesia reporting the characteristics of testicular torsion. East Java is the second largest province in Indonesia with a wide variety of socio-demographic backgrounds representative of the country. Thus, conducting the study in East Java would reflect the demographic characteristics of the Indonesian population [5]. As Dr. Soetomo general hospital is considered as the top referral hospital for eastern Indonesia region, evaluating the data for testicular torsion in this center would provide significant epidemiological data [6]. Therefore, we aimed to evaluate the clinical profile of testicular torsion patients in Dr. Soetomo general hospital over the past five years.

2. Materials and Methods

This was a retrospective descriptive study evaluating testicular torsion patients admitted to the Urology ward of Dr. Soetomo General Hospital between January 2016 and February 2020. Total sampling was performed to include testicular torsion patients of all ages. Patient data was taken from the medical records of all patients with the complications. Patients with incomplete or missing data were excluded. Relevant collected data included: Patient's age, Location of torsion, pain onset, history of trauma, and management. All operations were performed by Urologic surgeons with the same level of competence ensuring a standardized operative care among patients. The obtained data was analyzed and presented descriptively. This study was approved by the hospital ethics committee of Dr. Soetomo general hospital (1994/KEPK/V/2020).

3. Results

There were 17 testicular torsion patients who were admitted to the Urology ward of Dr. Soetomo general hospital between January 2016 and February 2020 in total. The average of the patients was 14 years old. Table 1 shows that the age group with the highest number of cases was 10 to 12 years old (47%), whereas the lowest number of cases was found only in two patients aged 19 years old and above (11.76%).

Table 1. Age Distribution of the Testicular Torsion Patients

| Age Group (Years old) | Testicular Torsion cases N=17 |
|-----------------------|-------------------------------|
| 10-12 | 8 (47%) |
| 13-15 | 4 (23,5%) |
| 16-18 | 3 (17,6%) |
| 19-21 | 1 (5,8%) |
| >21 | 1 (5,8%) |

Most patients suffered from pain in their left testicular area (76.5%) as shown in table 2. The patients also did not suffer from any trauma beforehand. Unfortunately, most of them came to the emergency room six hours after the pain had started (82.4%).

Table 2. Etiologies of the Urogenital Fistula cases among the study subjects

| | Testicular Torsion cases N=17 |
|--------------------------|-------------------------------|
| Location | |
| Right | 4 (23.5%) |
| Left | 13 (76,5%) |
| Pain onset | |
| <6 hours | 3 (17.6%) |
| >6 hours | 14 (82.4%) |
| History of Trauma | 0 |

Table 3 displayed the treatment of the patients, in which most patients were treated with orchidectomy of the affected testis and orchidopexy of the contralateral testis (82.4%).

Table 3. Management of the study subjects

| Procedure | Testicular Torsion cases N=17 |
|------------------------------|----------------------------------|
| Exploration and Detorsion | 3 (17.6%) |
| Orchidectomy and orchidopexy | 14 (82.4%) |

4. Discussion

The seemingly small number of cases of testicular torsion in this center should not be taken lightly as improper recognition and management of the disease could lead to irreversible damage to the testicular organ [2]. Torsion of the testicular appendages and spermatic cord can occur at any age. However, it is most commonly seen in adolescent boys with a current increasing trend among newborns [7]. This data is in line with the findings in this study, in which the average age of the patients was 14 years old. Most of the patients aged 10 to 12 years old (47%) followed by 13-15 years old (23.5%). Zhao et al reported a bimodal distribution of testicular torsion with one peak at the first month of age and another at 12 years old, reflecting a clinical difference between extravaginal torsion in newborns, intravaginal torsion in infants and other children [4]. Even though, the most prevalent cases occur in a relatively younger age, it could afflict patients of all ages. Most admitted patients complained of pain in the left testis (23.5%). A retrospective examination of 186 boys with testicular torsion who underwent surgical exploration also showed higher prevalence in the left side, in which approximately 48% of the torsion occurred on the right side and 52% on the left side [8]. Similar findings were reported by Yang et al, which showed dominance on the left side (76.2%) as opposed to the right (23.8%) [9]. The viability of the organ is influenced by the length of onset and degree of torsion. Pain due to torsion lasting for 12 hours without intervention could cause a reduction of salvage rate from 88% to 36% [10]. The timeframe for possible salvage and survival of the organ from irreversible damage is six to eight hours [11]. Unfortunately, most patients in this study came to the emergency room after six hours (82.4%), all of them were managed by ipsilateral orchidectomy and contralateral orchidopexy. Previous studies showed that testicular salvage within the first six hours was 90 to 100 %. In six to twelve hours, the survival rate was 20 to 25%, which decreased to 11% in duration lasting more than 12 hours [11]. In patients with high suspicion of testicular torsion based on clinical signs and symptoms, immediate exploration should be undertaken with minimal delay. However, the risk for overtreatment should be made aware of as several studies have reported surgical exploration for suspected torsion with negative results in approximately 28% of cases [12]. These findings supported the need for the conduction of futures studies to fully assess the epidemiology of testicular torsion in Indonesia. An updated similar study which includes a larger sample size taken from multiple tertiary health centers in Indonesia should be conducted. Future studies should also include an analysis of risk factors and long-term complications for testicular torsion among Indonesian patients. Apart from studies, an increase of awareness regarding the golden time for survival among laymen is also important.

5. Conclusion

Testicular torsion cases in Dr. Soetomo general hospital mostly occur among adolescence with the left side affected among the majority of cases. Most patients came after six hours, which led to irreversible damage requiring ipsilateral orchidectomy and orchidopexy of the affected contralateral side.

6. References

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