



# A Pain in the...Scrotum: Utility of Urinalysis and Gonorrhea/Chlamydia Testing in Management of Patients Presenting to the Emergency Department with Acute Scrotum

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## INTRODUCTION

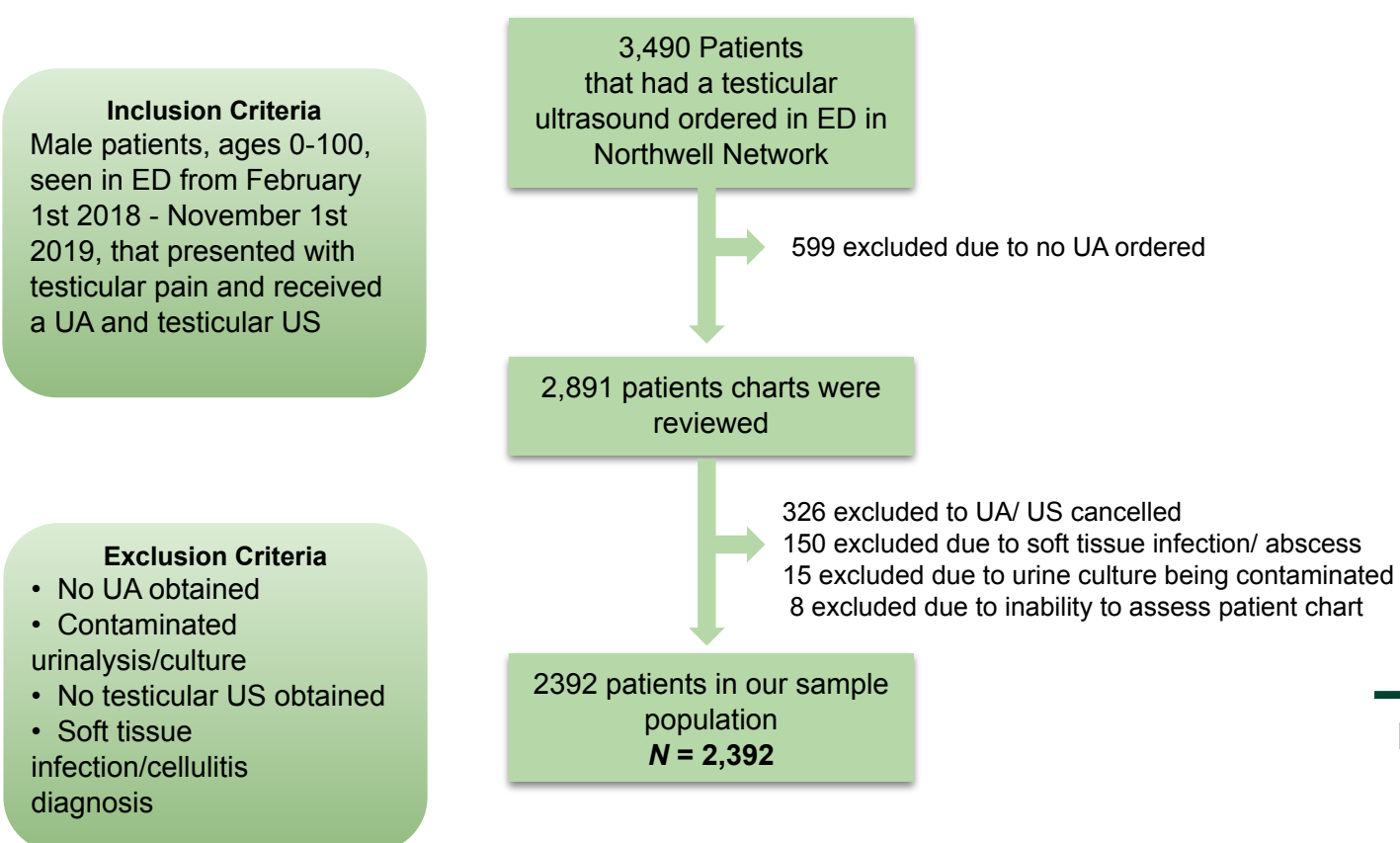
- The clinical term "acute scrotum" can be caused by a variety of pathologies (Davis, 2019).
- According to the American Urological Association, the history, physical examination and ultrasound (US) are keys to the diagnosis of acute scrotum. The purpose of this study is to determine if UA in patients with acute scrotum significantly affects management.
- Traditionally, initial emergency department (ED) workup includes urinalysis (UA) and nucleic amplification for gonorrhea and chlamydia (GC) to determine etiology. However, UA may yield false-positives which can lead to inappropriate antibiotic use.
- Similarly, GC results often become available after patients have already been discharged with antibiotics.

## PURPOSE

- The purpose of our study was to determine if urinalysis results have an effect on the evaluation of acute scrotum patients presenting to emergency department and as well as if GC testing results have an effect on the evaluation of acute scrotum patients presenting to emergency department.

## METHODS

- IRB approval was obtained on January 3rd, 2020
- Multicenter, retrospective chart review
- Patients presented to ED with acute scrotal pain that received UA and US.
  - February 1, 2018 to November 1, 2019
- Data obtained on patient encounters through a query of the EDs' electronic medical record (EMR).
- An *a priori* power analysis determined that a minimum sample size of 880 patients was needed to have 95% power an alpha = .05 (G-power Version 3.1.9.6, Germany).
- Data analyzed with IBM SPSS Statistics Version 26 (Armonk, NY).
- IRB approved on January 3, 2020.



**Definition for Urine Culture**

- Positive Urine Culture = >100,000 CFU growth of bacteria
- Contaminated = 3 or more different species of microbial growth
- If the patient did not have urine culture, the results of UA were evaluated.

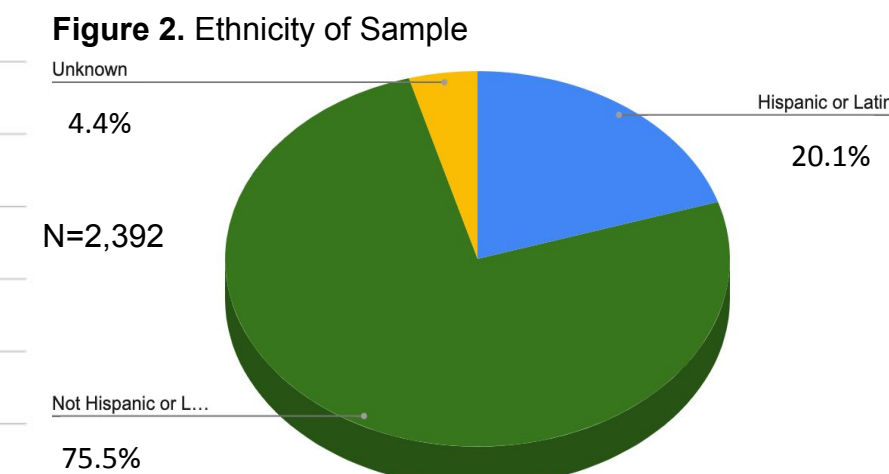
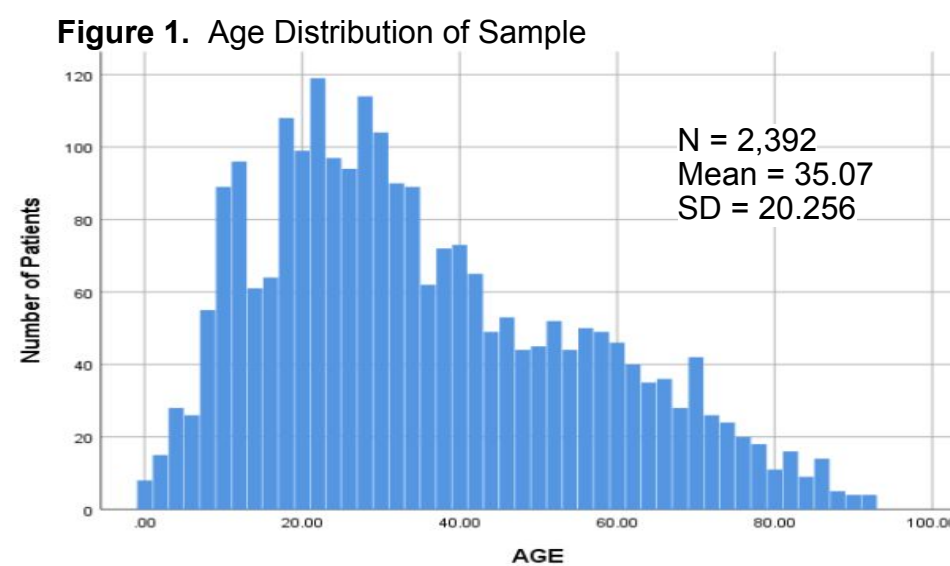
**Definition for Urinalysis**

- Positive UA = nitrites or leukocytes (any value) + pyuria (WBC > 5)
- Contaminated = moderate or more epithelial cells

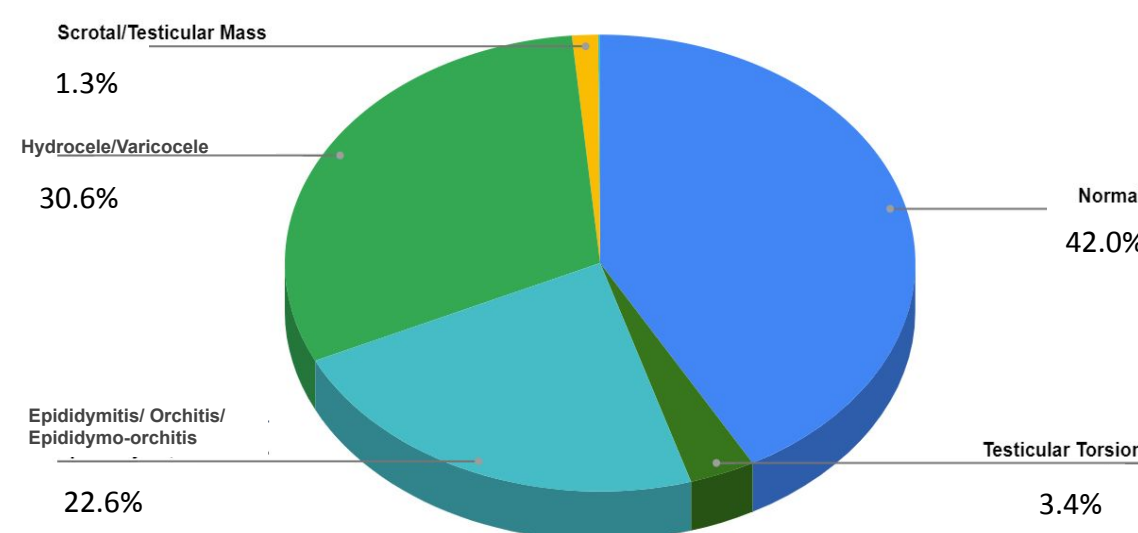
## RESULTS

**Table 1. Demographics of Sample**

Demographic	Number of Patients (Percent)
Sex	
Male	2,392 (100%)
Primary Insurance	
None	181 (7.6%)
Private	1,295 (54.1%)
Public	916 (38.3%)
Secondary Insurance	
None	2,034 (85.0%)
Private	195 (8.2%)
Public	163 (6.8%)



**Figure 3. Percentage of Ultrasound Diagnoses**



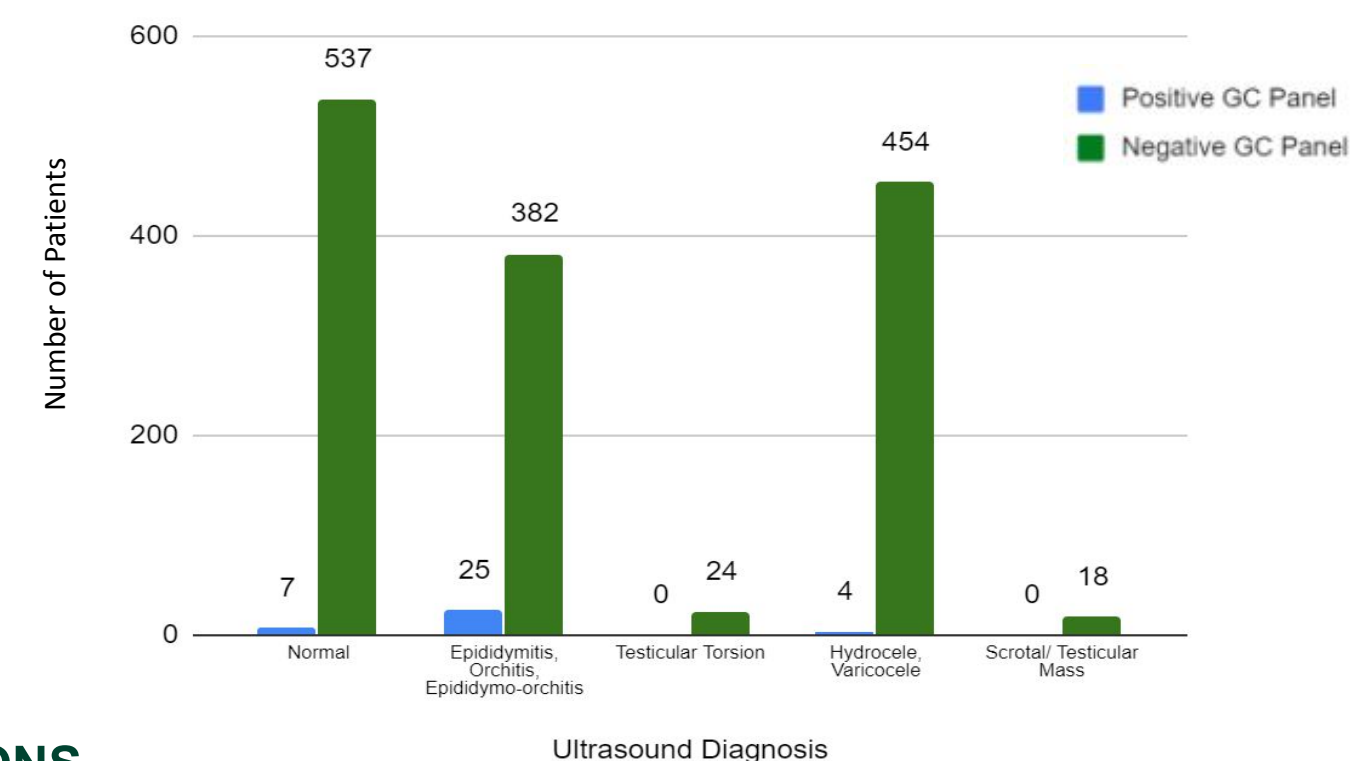
**Table 2. Medical History**

PMH	Number of Patients (Percent)
Diabetes Mellitus II	
Yes	186 (7.8%)
No	2,207 (92.2%)
Chronic Kidney Disease	
Yes	28 (1.2%)
No	2,365 (98.8%)
Single Kidney	
Yes	4 (0.2%)
No	2,389 (99.8%)
Immunocompromised State	
Yes	65 (2.7%)
No	2,328 (97.3%)

**Table 3. Cross Tabulation Between Ultrasound Diagnoses and Urine Interpretation**

Ultrasound diagnosis	Positive	Negative	Total
Normal	32 (3.3%)	949	981
Epididymitis/Orchitis, Epididymo-orchitis	100 (18.9%)	429	529
Hydrocele/Varicocele	34 (4.7%)	682	716
Testicular Torsion	2 (2.6%)	76	78
Scrotal/ Testicular Mass	0 (0.0%)	31	31
Entire Population	173 (7.2%)	2,219	2,392

**Figure 4. Ultrasound Diagnosis and GC Testing Result**



## CONCLUSIONS

Do urinalysis results have an effect on the evaluation of acute scrotum patients presenting to emergency department?

- Only 173 of 2392 or 7.2% of patients with acute scrotum had a positive UA across 13 health system sites.
- Out of all diagnoses, epididymo-orchitis had the most positive UAs at 18.9%, suggesting UA has the most utility in this diagnosis.

How often did UA/urine culture results affect if the patient received antibiotics?

- Of the 2,219 patients with negative UAs, 660 (29.74%) received antibiotics.
- 30 of 173 patients or 17.3% of patients with positive, UA did not received antibiotics

Do GC testing results have an effect on the evaluation of acute scrotum patients presenting to emergency department?

- Gonorrhea Testing was positive in 0.95% and Chlamydia testing was positive in 4.1% of patients.
- 97.9% of patients with negative GC results received empiric GC antibiotic treatment.
- 78.1% positive GC testing had a concomitant diagnosis of epididymo-orchitis

## CLINICAL RELEVANCE

The data may help ED providers determine whether ordering and collection of urinalysis is necessary in managing patients with acute scrotum and therefore can help decrease wasteful resource utilization.