The Initial Versus True Prevalence of Lichen Sclerosus among the Male Patients in the Department of Urology

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ABSTRACT

Introduction and Objectives. Lichen sclerosus is probably the most commonly underdiagnosed urologic pathology. Being often considered a simple skin condition that only produces white hypomelanotic lesions, it is discarded or unrecognized by a good number of physicians. Literature data finds this disease to be as rare as 0.07% to 0.0014% of men.

The aim of this paper is to better assess the prevalence of lichen sclerosus among all the male patients of the department of urology.

Materials and Methods. During a period of six years, from 2017 to 2022, out of the 362 685 male patients of Fundeni Clinical Institute and the 60 012 male patients of the department of urology, 132 were diagnosed at admission with a form of lichen sclerosus. 8 had an uncomplicated disease, 46 had secondary phimosis, 58 had associated urethral strictures, and 20 had evolved into penile or urethral tumors. We then performed a retrospective study on all the 255 phimoses, 755 urethral strictures and 194 penile and urethral tumors treated during the same sex year period, reviewing histopathological results and clinically reassessing the patients, in order to discover potentially undiagnosed cases of lichen sclerosus.

Results. The initial 132 cases translated into a prevalence of 0.036% among the general male patients of the hospital, and 0.22% for the department of urology, numbers that are relatively close to literature data. After the retrospective study, we found lichen sclerosus in another 126 phimoses, 13 urethral strictures, and 86 tumors. Which brings the total number of patients to 357, and the corrected prevalence to almost 0.1% of the general population, and 0.6% among the department of urology.

Conclusions. Lichen sclerosus is a severely underdiagnosed condition. It gets ignored because many physicians still consider it a simple skin disorder, and do not link it to its evolutive complications, like phimosis, urethral strictures and penile or urethral tumors. In our study we found a 3 to 1 ratio between the final and initial diagnosed cases of lichen sclerosus. The true prevalence is yet to be identified.

Key-words: lichen sclerosus, prevalence, male patient

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INTRODUCTION AND OBJECTIVES

For a very long-time lichen sclerosus was considered a simple skin disorder, that produces white hypomelanotic lesions on the genital region, affecting both men and women, with a ratio of six to one[1]. And as the only reported early symptom was a light pruritus, the condition was ignored by patients and the physicians alike. Only later, in 2001, Barbagli observed all the complications of this disease in men and envisioned four evolutionary stages for it[2]. In the first stage the pathognomonic white areas are observed at the level of the prepuce and can lead to phimosis. During the second stage the lichen sclerosus affects also the skin of the glans, that can fuse to the already involved prepuce. For the third stage the lesions progress up the urethra, developing urethral strictures of various lengths[3]. And in the fourth and last stage a malignant transformation takes place, resulting in penile or urethral tumors. The neoplastic stage accounts for 2% to 12.5% of the cases, and can be noticed anywhere from 14 to 30 years after the onset of lichen sclerosus[4].



Image 1. Lichen sclerosus of the prepuce and glans (stage 2)

As these complications occur, patients are driven to address the medical system, and urologists tend to concentrate on managing them, ignoring the underlining lichen sclerosus. Therefor this pathology is left undiagnosed for a second time, making it one of the most commonly underdiagnosed urologic pathologies.

Because of these unfortunate situations, the prevalence of lichen sclerosus is very low. In a retrospective study on 153 432 men, Kizer found this "simple skin disorder" had been diagnosed in only 0.07% of them[5]. For a larger number of male patients, 42 648 923 to be exact, Nelson calculated the prevalence of lichen sclerosus even lower, at only 0.0014%[6]. Again, we are talking about a retrospective study that counted the already diagnosed patients and did not try to find any new cases. Yardley on the other hand assessed the circumcision biopsies from young prepuberty boys with phimosis and found lichen sclerosus to be a lot more frequent, at around 34%[7]. And Mallon observed that approximately 15% of penile dermatoses are in fact lichen sclerosus[8].

The aim of this paper is to better assess the

prevalence of lichen sclerosus among all the male patients of the department of urology.

MATERIALS AND METHODS

For a period of six years, from 2017 to 2022, we performed a prospective study inside the Department of Urology of the Fundeni Clinical Institute of Bucharest, Romania (FCIB). During this time frame, a total of 703 246 patients were treated at the institute, of which 362 685 were males, accounting for a percentage of 51.57%, and the remainder 340 561 (48.43%) were females. Of the total number of patients, 93524 were admissions at the Department of Urology, the better part of them, 60012, being men, reaching an aggregate of 64.17%.

We have enrolled in our study all the male patients that were diagnosed at admission with a form of lichen sclerosus. For the accounted six years a total of 66 cases were discovered: 4 had an uncomplicated disease, 23 had secondary phimosis, 29 had associated urethral strictures, and 10 had evolved into penile or urethral tumors.
Afterwards we retrospectively tallied all the phimoses, urethral strictures, and penile or urethral tumors managed during the same time period inside the Department of Urology of the Fundeni Clinical Institute of Bucharest, Romania. And tried to determine if any of them were also burdened with an undiagnosed lichen sclerosus.
Starting at the beginning of the year 2017 all the way to the end of 2022 a number of 255 phimoses, 755 urethral strictures and 194 penile and urethral tumors were admitted for treatment in the Department of Urology of the Fundeni Clinical Institute. Their review process consisted in verifying the histopathological results, and even reanalyzing the biopsy specimens, and anamnestically and clinically reassessing the patients.

RESULTS

After the prospective part of our six-year research, a total of 132 patients were identified having lichen sclerosus, out of 60012 men admitted in the Department of Urology, and 362 685 male patients of the whole institute. This translates into a prevalence of 0.018% among the general male patients of the hospital, and 0.11% of the urology cases in men, as seen in Table no. 1. These percentages are relatively close to literature data afore mentioned.

	FCIB	Urology	Lichen sclerosus (LS)
♂ patients	362685	60012	132
LS percentage	0.03639%	0.21995%	100%

Table 1. The percentages of lichen sclerosus patients among the men treated in our hospital

These 132 patients represented a rather small minority of all the phimoses, urethral strictures, and penile or urethral tumors managed during the same time frame. The four uncomplicated lichen sclerosus patients were excluded from this comparation, and the results cand be observed in Table no. 2.

Pathology	Total	LS associated	LS percentage
phimosis	255	46	18.03922%
stricture	755	58	7.68212%
penile / urethral tumor	194	20	10.30928%

Table 2. The percentages of patients with phimoses, urethral strictures, and penile or urethral tumors associated with lichen sclerosus

But these results represent only an initial and superficial assessment of the prevalence of lichen sclerosus. And although they are within reach of the literature already published data, our final numbers paint a completely different picture.

For the 209 remainder patients that had a circumcision for phimosis and were not already diagnosed with lichen sclerosus at the moment of the surgery (255 total minus the 46 already counted cases) we reanalyzed the histopathological reports of the resected prepuces. We actively searched for descriptions characteristic of lichen sclerosus, even without a stated diagnosis: observed areas of hyperkeratosis and epidermal atrophy, associated with vacuolar degeneration of the basal membrane, loss of elastine fibers and hyalinization of the lamina propria. And the findings somewhat shocked us: 126 more cases corresponded to this microscopic interpretation

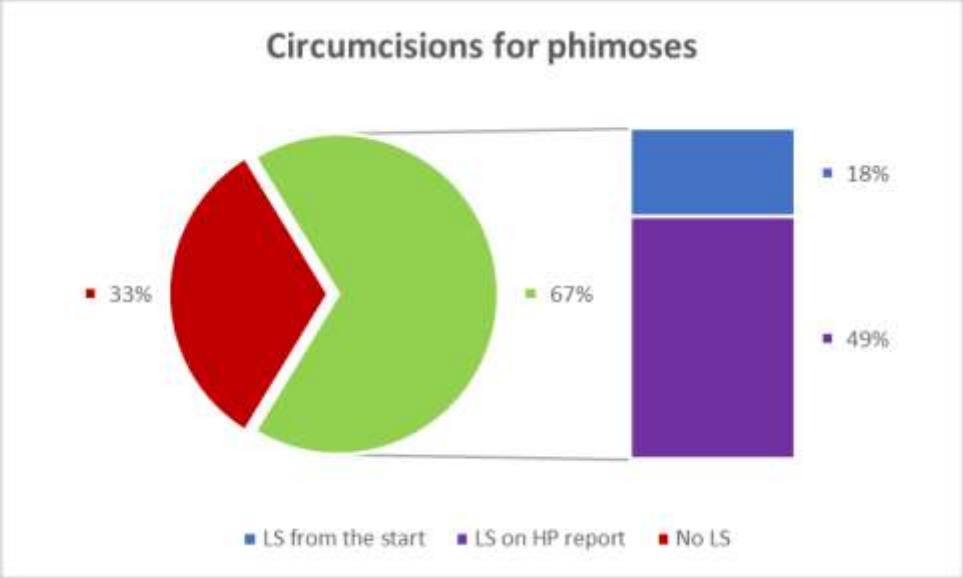


Image 2. The distribution of patients with phimoses based on the association with lichen sclerosus

These 126 newly found patients represent 49.41% of all the phimoses that required a circumcision during this six-year period, between 2017 and 2022. And if we add the first 46 cases, we get to a total of 172 men, or 67.45% (Image no. 2). So it is quite clear that histopathologists, although they observe lichen sclerosus lesions on the resected prepuces, they generally do not state this diagnosis unless specifically signaled by the operating urologist. And as these patients are not correctly and completely diagnoses, they do not receive the proper medical care and follow-up.

We tried to perform a similar algorithm for the remainder 174 patients with penile or urethral tumors operated on in our department from 2017 to 2022 (194 total cases minus the 20 already diagnosed with lichen sclerosus), to reanalyze the histopathological reports. But as a tumor is a problem far more important and dangerous then lichen sclerosus, the histopathology specialists tend to focus only on describing the former, completely ignoring the latter. And only if advised by the surgeon they will also assess the presence of lichen sclerosus adjacent to the tumor. Therefor simply reviewing the reports was not helpful. We had to work together with our colleagues from the Department of Histopathology in order to reevaluate the pathologic specimens from the initial surgeries and try to find signs of lichen sclerosus in the vicinity of the tumor tissue. And were successful in doing so in an additional 86 cases.

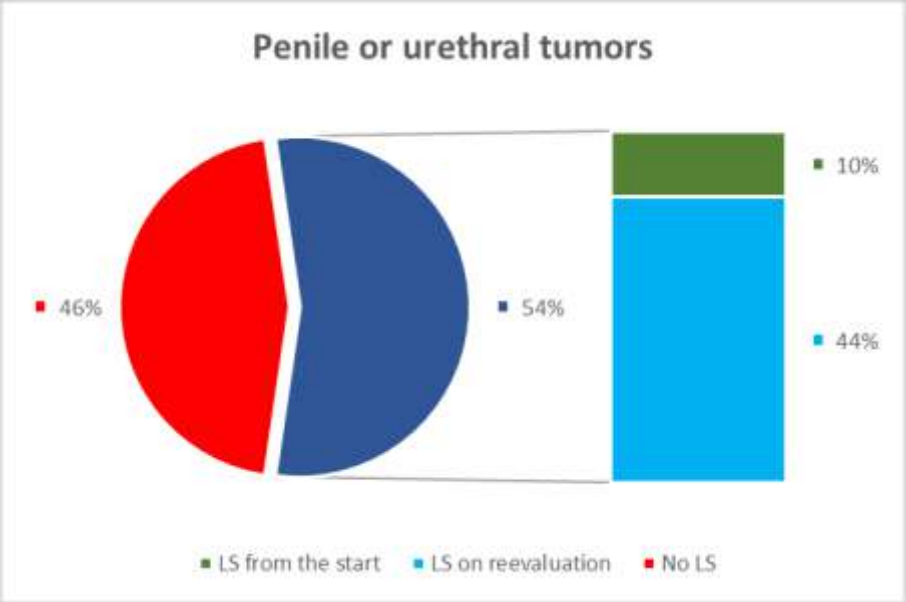


Image 3. The distribution of patients with penile or urethral tumors based on the association with lichen sclerosus

These new 86 patients with penile or urethral tumors associated with lichen sclerosus represent almost half of the whole number of patients managed in our hospital for these types of cancers (44.33%). After adding the initial 20 prospectively discovered cases, we arrive at a total of 106 men with lichen sclerosus in the fourth and last stage of its evolution, which translates into a percentage of 54.64%, as seen in Image no. 3.

The hardest task though was to identify other lichen sclerosus patients among the remainder 697 admissions for urethral strictures registered in our department from 2017 throughout 2022 (755 total minus the initial 58 prospectively diagnosed cases), because the management of urethral strictures does not require a biopsy specimen. So we needed a completely different route to approaching the situation. As lichen sclerosus causes stenoses that start at the external meatus and progressively affect firstly the anterior then the full urethra, we excluded all the cases treated through dilations or urethrotomies, since these methods would not correctly solve that particular type of strictures. Then out of the patients that received either a meatoplasty or a urethroplasty or perineal urethrostomy, we also discarded all the bulbar or membranous strictures, and all the posttraumatic strictures. We were left with 24 patients, that were contacted in order to perform a follow-up visit to inquire of any prior presence of white hypomelanotic areas at the level of the prepuce or glans, and any previously performed circumcisions, that would be consistent with the presence of lichen sclerosus. 20 patients positively responded to our request, and of them 13 were subsequently diagnosed with lichen sclerosus.

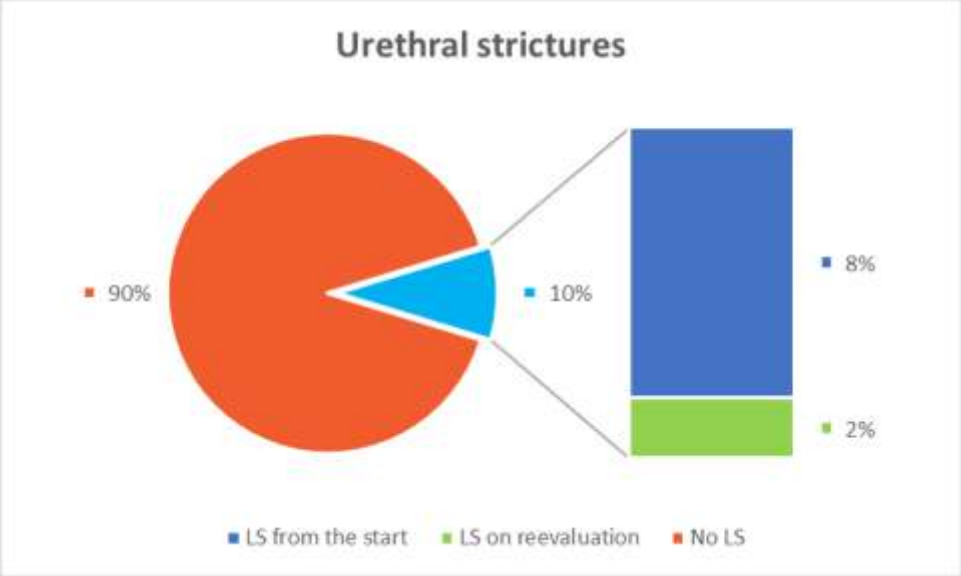


Image 4. The distribution of patients with urethral strictures based on the association with lichen sclerosus

The 13 new cases of urethral strictures associated with lichen sclerosus amount to 1.72% of the total of 755 strictures managed during the six-year studied period in our center. Which bring the sum of the prospectively and retrospectively identified cases to 71, and a percentage of 9.40%. This fraction is a lot smaller compared to lichen sclerosus associated with phimosis or with penile or urethral tumors, .

mainly because the strategy used to identify these cases was based on deduction, clinical and anamnestic reevaluation of patients, not histopathological findings, a lot more prone to errors.

If we take into account the new cases found with lichen sclerosus, and update Table no. 2, we get the following results as seen in Table no. 3

Pathology	Total	Initial LS	Final LS	Initial LS %	Final LS %
phimosis	255	46	172	18.04%	67.45%
stricture	755	58	71	7.68%	9.40%
penile / urethral tumor	194	20	106	10.31%	54.64%

Table 3. The differences in the associated lichen sclerosus frequencies

We can clearly see how much lichen sclerosus is usually underdiagnosed, when physicians tend to focus solely on managing its evolutive complications. As the number of patients jumped over five times after the retrospective research, we can calculate a new and more accurate prevalence of this disease among one of the most prestigious medical centers of our country, Fundeni Clinical Institute of Bucharest, and also among the Department of Urology.

	FCIB	Urology	LS	LS reassessed
♂ patients	362685	60012	132	357
LS percentage	0.03639%	0.21995%	100%	
Final LS percentage	0.09843%	0.59488%	36.97479%	100%

Table 3. Revised numbers and percentages of lichen sclerosus patients

With a total of 357 patients with lichen sclerosus tallied after both prospective and retrospective arms of our research, the prevalence of this disease among the general male population reached almost 0.1%, while at the level of a department of urology it is of almost 0.6%. These numbers are a lot higher compared to the literature data presented at the beginning of this paper, but are a lot closer to the reality of this severely underdiagnosed pathology.

DISCUSSIONS

Lichen sclerosus is one of, if not the most frequently underdiagnosed disease in the field of urology. This has occurred as it initially has few or no symptoms, the patients ignoring it until it evolves into one of its known complications, like phimoses, urethral strictures, and penile or urethral tumors. Then it is undermined by physicians alike, that tend to focus on the management of the complication, without addressing the initial condition.

Our research has painted a clear difference between the prevalence of lichen sclerosus, usually observed in a more relaxed, prospective manner, and the more thorough retrospective method. The initial results, of 0.036% of the general population, and 0.22% in the department of urology, somewhat resemble the data obtained by Nelson6 and Kizer5, of 0.0014% and respectively 0.07%. But our final outcome, of 0.098% for the general population (represented by the whole medical center) and 0.594% for the department of urology, is a lot higher and closer to the true prevalence of lichen sclerosus.

Yet this research had its shortcomings, because we could not account for the uncomplicated cases beside the few we randomly found prospectively from the start. And we can only suspect that there is an important number of patients with lichen sclerosus with no symptoms or only a mild pruritus, unaware of the disease.

Also the method used to identify urethral strictures associated with lichen sclerosus was prone to errors, as it excluded patients that could have received dilations as a palliative form of treatment for various reasons, and it relied on anamnesis and clinical evaluation and could not benefit from a histopathological result.

CONCLUSIONS

Lichen sclerosus is a severely underdiagnosed condition. It gets ignored because many physicians still consider it a simple skin disorder, and do not link it to its evolutive complications, like phimosis, urethral strictures and penile or urethral tumors. In our study we found a 3 to 1 ratio between the final and initial diagnosed cases of lichen sclerosus. The true prevalence is yet to be identified.

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