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BLADDER LEIOMYOMA: CASE REPORT

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Summary.- OBJECTIVE: Leiomyoma is a benign lesion which represents 0.04-0.5% of bladder tumors. It is more common in females and its peak incidence is between 4th and 5th decades. Surgery is the treatment of choice and adequate results have been previously reported.

METHODS: 38 years old male patient who consulted for chronic pelvic pain syndrome. CT scan showed a 2 cm diameter exophitic lesion at the anterior left lateral bladder wall, which protruded into the perivesical fat. We performed a laparoscopic partial cistectomy locating the tumor and resecting it with simultaneous cystoscopic control, obtaining negative margins. The operative time was 70 minutes with an intraoperative blood loss of 50 ml. Postoperative period was uneventful. Final pathology reported: Bladder wall leiomyoma, without mitosis or atypia. Immunohistochemistry was positive for Actine and Vimentine stablishing diagnosis. Cd 117 (c-kit) was negative and ruled out a Gastrointestinal Stromal Tumor.

CONCLUSIONS: Leiomyoma is bladder’s most common benign non epithelial tumor. It represents 35-46% of these lesions with a 2:5 male/female ratio. It origins from the smooth muscle bundles and at the urinary tract the most common localizations are kidney and bladder. Clinical presentation depends on tumor size and localization. Ultrasound is the most useful diagnostic tool and the pathological diagnosis is mandatory. Surgery is the treatment of choice and technique depends on tumor size and localization. The laparoscopic approach seems to be an effective alternative in this group of tumors. Prognosis is good and recurrence is rare.

Keywords: laparoscopy. Bladder leiomyoma. Partial cystectomy.

Resumen.- OBJETIVO: El leiomioma es una lesión benigna que representa entre el 0.04-0.5% de los tumores vesicales no editoriales. Es más frecuente en mujeres y su pico de incidencia está entre la 4ª y 5ª décadas. La cirugía es el tratamiento de elección, habiéndose comunicado previamente resultados adecuados.

MÉTODOS: Paciente varón de 38 años de edad que consultó por síndrome de dolor pélvico crónico. La tomografía axial computarizada mostraba una lesión exóftica de 2 cm. de diámetro en la parte anterior de
left anterolateral bladder wall, which protruded to the perivesical fat. (Figure 1).

We decided to perform a laparoscopic partial cistectomy. Using the modified lithotomy position and after the creation of pneumoperitoneum with the Veress needle we proceeded with trocar positioning. Using a 10mm port at the umbilicus level for the endocamera another 10 mm in the left lower quadrant and two 5 mm, one in the right lower quadrant and one at the umbilicus level in a pararectal position (Figure 2), we proceeded to dissect the Retzius space to free the bladder with the Harmonic scalpel®. Once located the lesion protruding from the left anterolateral wall, we proceeded to the resection with aid of simultaneous cistoscopic view, obtaining a wide microscopic negative margin. Specimen retrieval was accomplished with an Endobag® device and sent to frozen section, which concluded the presence of a benign fusocelular tumor. Bladder closure was done with intracorporeal suture in a two layer fashion with a running 3-0 and 0 vicryl suture. An Hemovac drainage device and a 20 fr urethral catheter were placed at the end of the surgery. The operative room time was 70 minutes with intraperative blood loss of 50 ml.

Postoperative period was uneventful, retrieving the urethral catheter at the 5th postoperative day. Final pathological report concluded: Bladder wall leiomyoma, without mitosis or atipia. Immunohistochemistry was positive for Actine and Vimentine establishing diagnosis. Cd 117 (cKit) was negative and ruled out a Gastrointestinal Stromal Tumor (Figure 3).
DISCUSSION

Benign non epithelial lesions represent 1-5% of bladder tumors and Leiomyoma is the most common (1 - 3). It represents 35-46% of this type of neoplasms and corresponds to 0.04-0.5% of the bladder lesions in general, with no more than 300 cases reported in the literature (2 - 5). Leiomyoma has its origin from the smooth muscle bundles and contains connective tissue surrounding it. Therefore it can arise in any organ which contains this tissue being the most common localizations skin, womb, retroperitoneum, genitourinary and gastrointestinal tract (1, 4, 6). In the genitourinary tract it is most frequent in the kidney and bladder, specially at the trigone and bladder neck (4, 6, 7). It is most common in females in the fertile age, with a female/male ratio 5/2 and its peak incidence between 4th and 5th decades of life (1, 4 - 6).

The genesis of this lesion remains a mystery; however, there are a bunch of theories that try to explain this question (4, 8):

- Blum’s irritative-inflammatory theory, which suggest the presence of a chronic inflammatory stimulus over the smooth muscle.
- Piegel’s disontogenic theory which suggest its origin from embryonic rests of Muller and Wolf ducts.
- Vascular-irritative theory
- Lips-Chutz’s theory, which suggest its origin secondary to an endocrine disorder with estrogens and progesterone having a primary role. This theory supports its base in the peak incidence in females in the fertile period and the presence of steroidal ovarian receptors on the tumor (9).

Macroscopically these are round or oval tumors with an elastic consistency and irregular surface. The size is variable with reports of tumors as big as 30cm, specially in the extravasical localization (6, 7).

In bladder lesions, the localization is submucosal in 63%, and at cystoscopy we can see a sessile or pediculated lesion covered by normal mucosa. The subsesoral localization represents 11-30% of the cases, having a characteristic pedicle that bounds it with the bladder. The intramural localization is the less frequent and represents 7-17% of the cases, founding a well encapsulated tumor in the bladder wall (2, 3, 6) (Table I).

Leiomyomas can remain asymptomatic for many years, reaching considerable size, unless they affect the normal function of the lower urinary tract, (6). Symptoms depend on tumor size and lo-
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Endoluminal tumors are more symptomatic, presenting with urinary tract infections, hematuria, irritative symptoms, specially the ones at the bladder neck, or obstructive symptoms, causing even acute bladder outlet obstruction secondary to a valve effect (1 - 3, 6, 7) (Table II). Intramural and subserosal tumors are in general asymptomatic and the diagnosis is incidental. When the size is considerable it can appear as a pelvic mass or give symptoms secondary to the compression of adjacent structures (6, 7).

At cistoscopy submucosal tumors appear as a sessile or pediculated lesion covered by normal mucosa, but it could be normal if the tumor is intramural or subserosal. The same situation can occur in the Intravenous Pielography (IVP), showing a filling defect in the bladder wall if the lesion is submucosal. Ultrasound (US) allows to define the solid or cystic nature of the lesion, showing in these cases a solid smooth wall lesion with homogeneous echoes. Also allows to define the limits between the tumor and adjacent structures, showing us its localization in the bladder.

### TABLE I. LOCALIZATION AT THE BLADDER WALL.

<table>
<thead>
<tr>
<th>Localization</th>
<th>Silva-Ramos y cols. (1)</th>
<th>Ojeda Calvo y cols. (2)</th>
<th>Jiménez Aristu y cols. (6)</th>
<th>Golobuff et al. (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Submucosal</td>
<td>51,1%</td>
<td>63%</td>
<td>63%</td>
<td>66%</td>
</tr>
<tr>
<td>Intramural</td>
<td>30%</td>
<td>17%</td>
<td>7%</td>
<td>3%</td>
</tr>
<tr>
<td>Subserosal</td>
<td>16,7%</td>
<td>30%</td>
<td>30%</td>
<td>11%</td>
</tr>
</tbody>
</table>

### TABLE II. PRESENTATION SYMPTOMS.

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Silva-Ramos y cols. (1)</th>
<th>Golobuff et al. (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irritative symptoms</td>
<td>50%</td>
<td>38%</td>
</tr>
<tr>
<td>Obstructive symptoms</td>
<td>24,4%</td>
<td>49%</td>
</tr>
<tr>
<td>Hematuria</td>
<td>20%</td>
<td>11%</td>
</tr>
<tr>
<td>Palpable mass</td>
<td>20%</td>
<td>57%</td>
</tr>
<tr>
<td>Ureteral obstruction</td>
<td>6,7%</td>
<td>13,5%</td>
</tr>
<tr>
<td>Asymptomatic</td>
<td>26,7%</td>
<td>19%</td>
</tr>
</tbody>
</table>
wall. In the case of big tumors we also can see cystic degeneration process. Transvaginal US is an excellent option in female posterior bladder wall tumors in a subserosal localization (3 - 6).

Computed tomography gives us information about the size, position, and relationship between the tumor and bladder wall, but when comparing it with US and Magnetic Resonance Imaging (MRI) its accuracy to define the relationship between the tumor and the bladder wall is inferior (1, 7).

Therefore US is considered the most useful imaging diagnostic tool for diagnosis of these tumors (1, 4).

MRI shows leiomyoma with an intermediate signal on T1 weighted images, with good contrast between the tumor and the urine which has a low signal intensity. T2 weighted images shows high and low intensity foci with good contrast between these and the low intensity signals from the bladder wall muscle (3).

Nevertheless imaging tests add important data that suggest the benign nature of these tumors, like the presence of a well circumscribed lesion with homogeneous density, poor enhancement with contrast media and normal perivesical fat. There is no test that allows us to differentiate a leiomyoma from leiomyosarcoma, therefore pathologic diagnosis is mandatory (1, 8). Pathological analysis reveals proliferation of smooth muscle fibers with an eosinophilic cytoplasm with less than two mitotic figures per power field. They are surrounded by a variable amount of connective tissue and there is no necrosis or cellular atypia (3, 8). In a literature review by Silva-Ramos et al, 90 bladder leiomyomas where analyzed, 28 of which where biopsied before the definitive treatment. All samples obtained with a Tru-Cut needle and transurethral resection (TUR) where diagnostic, whereas the cold cup biopsy samples showed a 50% false negative. Fine needle aspiration biopsy was the less useful diagnostic tool (1).

The treatment choice depends on the tumor size and localization and relationship with the bladder wall (2, 10). Surgery is indicated because of the potential growing capacity of these tumors (6), however in cases confirmed by biopsy, conservative management is acceptable, keeping in mind that if the tumor increase in size, surgery is mandatory (3, 10).

Given the benign nature of these lesions, the surgery must be as conservative as possible. Submucosal tumors can be managed by trans urethral resection, being the size an important issue. Subserosal and huge submucosal lesions can be managed by enucleation or with partial cystectomy. Enucleation via transvaginal approach is a good alternative in tumors close to the urethra, and palpable through the vagina, however the recurrence risk could be higher due to an incomplete resection secondary to the limitations of the operative field (1, 2, 10).

The laparoscopic approach is an excellent option for tumors located at the mobile wall of the bladder, allowing an easy and safe procedure. Bladder wall edges are simple to identify, specially if simultaneous cistoscopic control is used, which adds the option of resecting the tumor with the resectoscope (10).

Prognosis is good and recurrence is rare if the resection is adequate, therefore it seems not to be necessary to establish follow up protocols. However, Lake in 1981 described what is to date, the only case of a Leiomioma with malignant degeneration (4, 8).

REFERENCES AND RECOMMENDED READINGS
(*of special interest, **of outstanding interest)