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Sudden death after lymphocele treatment in a patient underwent radical laparoscopic prostatectomy

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Introduction

Pulmonary Embolism (PE) is an important clinical event, frequently underdiagnosed and often a terminal event with a high mortality, therefore it must be well-known and possibly suspected to start the adequate therapy. Venous Thromboembolism (VTE) including Deep Venous Thrombosis (DVT) is a common disease in the community and PE is one of the most frequent cause of death among hospitalized patients [1].

Among urological surgery, radical prostatectomy have many risk factors for VTE considering location of the surgical procedure, age of the patient, long procedure time in Trendelemburg position and the possible need of pelvic lymph node dissection.

The rate of complications after endoscopic extraperitoneal prostatectomy are usually low, in the early and late post-operative period [2].

Nevertheless pelvic lymphocele is quite common complication when pelvic lymphadenectomy has to be performe, moreover when an extended template is necessary [3], however there are mostly asymptomatic lymphocele [4].

Here we present a case of a sudden death related to P.E. in a patient with bilateral pelvic lymphocele following laparoscopic radical prostatectomy for prostate cancer.

Case presentation

A 68-year-old man presented to the AE service of our hospital with mild fever and pain in the right iliac fossa from the previous 15 days. 40 days before he has undergone laparoscopic extraperitoneal radical prostatectomy for adenocarcinoma of the prostate in another hospital.

In his past medical history the patient had hypertension, dyslipidaemia and he underwent a left radical nephrectomy for renal clear cell carcinoma. He as a history of low grade non muscle invasive bladder cancer with a negative follow-up in the last 5 years and he was an active smoker. He did not have any familiar history of VTE. His body mass index was 28.

The radical prostatectomy final pathology reports a T3a N0 disease with Gleason 7, 4+3. According to guidelines and to the baseline PSA that was 12 ng/ml he underwent bilateral pelvic lymphadenectomy during surgery.

The description of the surgical procedure reported that the nodal dissection was performed mainly by thermal energy and that it was extended up to common iliac vessels, therefore it should not be considered as an extended sample. According to the medical records Low Molecular Weight Heparin was administered from the 1 post-operative day and for 25 days after the discharge; 4000 U.I. of daily Enoxaparin were prescribed. The patient was discharged with a bladder catheter, removed on

postoperative day 14 after cystography that did not show any leakage. Mechanical prophylaxis with compressive stockings have been done according to the medical records, but no data have been reported regarding how many days the stockings have been used; the patient was discharged on post operative day 4 without complications.

In the emergency department the patient underwent clinical examination, without any pathologic finding, and lab exams were characterized by neutrophilic leukocytosis with 13.5 x 10^9 neutrophils and the other analyses were normal such as creatinine and electrolytes. The patient underwent an abdomen ultrasound that showed two great hypo/anechoic collections of fluid with corpuscolated content and thin wall. One was in the right iliac fossa extended along the retroperitoneum to the renal loggia 20 x 13 cm size and another one with the same characteristics on the other side, size 12 x 5 cm.

According to the hypothesis that these two collections of fluids were infected lymphocele an empiric intravenous antibiotic therapy with Gentamycin was started, and we decided to proceed with a percutaneous drainage of the lymphoceles. Two drains were positioned with an ultrasound guided procedure, and part of the fluid collection was sent for chemical and microbiological analysis. Creatinine level of the collected fluid was 0.9 mg/dl, closed to the serum creatinine of the patient therefore the collection was confirmed to be lymphocele. When the culture arrived, no significant bacterial growth has been found in the fluid.

24 hour after the procedure the patient was clinically stable and repeated blood analyses with no significant differences with the results obtained before the procedure. The patient had no respiratory symptoms and vital parameters such as blood pressure, O_2 saturation and heart rate have been checked regularly and did not reveal any particular alteration.

Two days after the procedure, while walking in the corridor of the ward the patient had a sudden collapse and experienced a cardiac arrest. The cardiopulmonary resuscitation was initiated immediately but despite all the efforts the patient died.

The autopsy was performed and revealed the two lymphocele located in the bilateral iliac fossa and a thrombosis of the external right iliac vein extended for 7 cm with an extensive inflammation of the vein. The lungs were both congested and edematous with normal bronchial structures and a massive pulmonary embolism and a thrombus in the common pulmonary artery extended bilaterally.

Discussion

The introduction of mini invasive surgery have changed the surgical scenario in patients with prostate cancer and the rate of complications of laparoscopic prostatectomy range between 2 and 17% [5].

In a large study on laparoscopic and robotic prostatectomy with almost 6000 patients analyzed the incidence of DVT after surgery, the incidence of symptomatic VTE considered as DVT or PE within 90 days after surgery was 0.5% with only 9 cases of PE of whom four without identified DVT.

The authors of the study identified as risk factors tobacco smoking, longer operative time and longer hospital stay, large prostate volume and patient re exploration; pelvic lymphadenectomy did not result in a risk factor for symptomatic DVT after surgery and in the conclusion of the study, according to their results the authors did not suggest the use of prophylactic heparin pre and post operatively at least for low risk patients [6].

The European Urology Association in its guidelines on thromboprophylaxis reported three different risk class for VTE in which age (>75 years), body mass index and previous personal or familiar history of VTE are the main elements to be considered. There are even other factors mentioned such as length of procedure, immobility, inheritable blood disorders. Then, regarding specifically radical prostatectomy the panel specifies that for patients treated with laparoscopic radical prostatectomy with standard pelvic lymphadenectomy pharmacological prophylaxis is strongly not recommended in patients at low risk, weakly not recommended in patients at intermediate risk and strongly recommended only in patients with high risk thus in patients with a previous thrombotic episode in their life or with two or more combined risk factors. Mechanical prophylaxis it is recommended in all patients until a complete ambulation is recovered.

Regarding lymph node dissection the only difference reported between standard LND and extended LND is that for extende LND procedure the recommendation against pharmacological prophylaxis is weak even in the low risk class. Therefore according guidelines in this case the patient belongs to the low risk class and did not need any pharmacological prophylaxis even related to the surgical tecnique and the extent of lymphadenectomy.

Despite these consideration in this case probably the presence of lymphocele is crucial for the determining of the VTE but this shows once more that a careful consideration of the patient and of the possible complications of surgery must be done when applying guideline for thromboprophylaxis.

Moreover, DVT should be investigated every time that a lymphocele is detected after pelvic surgery, much more if the size of the lymphocyst is remarkable. Nevertheless, even if not considered as a strong risk factor in guidelines, the intrinsic risk of VTE in an oncologic patients, with a history of two urological cancers, need to be taken in account in this case. VTE is an important complication after general surgery considering that it is one of the most common cause of death among oncology patients [8] and even in patients underwent radical prostatectomy it represents a common cause of readmission after discharge [9].

Lymphoceles are common complications after pelvic surgery, although the exact incidence is not known because the majority of the cases are asymptomatic and resolve without any sequelae. For these reasons the reported rate of incidence varies widely but there is no significant difference with surgical tecnique [10]. Furthermore, the incidence of lymphocele is hardly evaluable considering that the most of them are asymptomatic and that it could be higher if a radiological tool is used to evaluate all patients treated with lymphadenectomy. Lymphoceles could be more dangerous when there is a superinfection of these collections of fluid or when they cause some compressive effect on adjacent structures.

Compression of ureters causes hydronephrosis, rectosigmoid compression can cause constipation, pelvic nerves compression can cause pain, bladder compression can cause urinary symptoms and venous compression can cause a wide range of symptoms from lower extremity edema to DVT and P.E. The need for a surgical treatment of lymphocele depends on different factors and there are different procedures (Es. Marsupialization) but the primary treatment in symptomatic lymphocele is drainage, even because is a relatively simple procedure performed under ultrasound guidance and with local anesthesia. The drain could be left in place and often is the only procedure needed to obtain a complete resolution.

Clearly in this case the VTE is probably related to the bilateral lymphocele and previous reports have reported that the risk of VTE after prostate surgery it is higher in patients that underwent concomitant pelvic lymphadenectomy rather than patients treated with radical prostatectomy only [11].

Therefore, even the risk of pulmonary embolism is higher in this group of patients due to lymphadenectomy and its possible consequences for DVT [12].

In this case DVT was no suspected even because there was not any clinical symptoms reported by the patients and because only ultrasound evaluation has been made, considering the high accuracy of this exam in the diagnosis of lymphocele and for the subsequent drain positioning.

It was probably due to the drain positioning that the pulmonary embolism occur, and for sure if DTV would have been suspected or detected during the first diagnostic evaluation we would have chosen a different treatment with a caval filter and direct thrombolysis as reported in previous case reports with DVT and lymphocele [13].

Conclusion

In conclusion it is evident how guidelines on thromboprophylaxis should be carefully evaluated not only considering the intrinsic risk of the patients but even considering the type of procedure and the possible impact of some complications such as lymphocele, taking in account that in patients with pelvic lymphocist pharmacological prophylaxis might be prolonged.

Moreover, an accurate radiological evaluation of patients with pelvic lymphoceles must be done in order to exclude compression of veins and possible DVT and in order to plan the best therapeutic approach.

Eventually, considering that lymphocele and much more DVT are complications that occurs more often many days after the discharge, it is very important that all patients should be advised on all the symptoms and the signs of these complications in order to allow them to seek medical evaluation at an early stage and avoid worst sequelae.

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