ABOUT A CLINICAL CASE OF SECONDARY GROIN LYMPHOCELE TO ECMO

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Abstract. The Authors describe the clinical case of a female O.S., aged 45-years, who came to their observation for the appearance of lymphocele in left groin region after the ECMO procedure. The patient, suffering from idiopathic pulmonary fibrosis with very serious impairment of lung function, waiting to receive bilateral lung transplantation, underwent the extracorporeal membrane oxygenation procedure to the worsening of his clinical condition and the appearance of an ingravescent breathlessness, which put his life in serious danger. After undergoing a lung transplant the postoperative course took place regularly with the patient's discharge and resumption of her normal daily activities after an adequate period of convalescence. In April 2018, about two months after the surgery, a clinical check highlights the presence of a lymphocele of the approximate size of 8 x 5 cm in the left groin region. The common femoral vein is unscathed by endoluminal thrombosis with negative CUS, but the caliber is reduced likely by compression of the lymph accumulated in the subcutaneous tissue of the groin region. It is decided no to have surgery to remove the lymphocele, but to treat it more conservatively with multiple evacuative punctures of the lymph, followed by endocavitary injection of lauromacrogol 400 to 3% and then compressive bandage left groin region. After 3 sessions of endocavitary sclerosis 7 days apart, the lymphocele gradually decreased in volume until its total disappearance after 3 months of treatment. In conclusion in the personal experience, as in that similar of other Authors, the non- aggressive treatment of the post ECMO groin lymphocele, using in consecutive sessions the endocavitary injection of lauromacrogol 400 to 3% after suction of the lymph and subsequent local compression of the groin region, proved to be an effective and safe procedure in achieving the patient's healing without resorting to surgical treatment of the lymphocele itself.
Keywords: extracorporeal membrane oxygenation, groin lymphocele, sclerotherapy.

Introduction

The Authors of this paper report the clinical case of a 45-year-old woman who, suffering from idiopathic pulmonary fibrosis with severe chronic respiratory failure, has been undergoing an extracorporeal membrane oxygenation procedure, also known as ECMO, for a long period of time waiting to receive bilateral lung transplantation (1,2). Subsequently, after discharged from the hospital after undergoing a lung transplant, the woman presented during the convalescence an infrequent complication of a lymphatic nature, probably linked to the injury of lymphatic vessels at the site of cannulation of the common left femoral vein. The management of the lymphocele provides mainly three options: 1) the first to be preferred in small lymphoceles is spontaneous reabsorption; 2) the second involves the use of sclerosing substances that occlude the lumen of the lymphatic vessel; 3) the third relies on surgery to treat large volumetric lymphoceles. The Authors chose the second option in the clinical case under discussion, obtaining the complete regression of the groin lymphocele after three sessions of echo-guided intake of the lymph and contextual entry into the remaining lymphatic sac of a sclerosing substance, the lauromacrogol 400 to 3%.

Clinic case

At the autonomous operating Unit of Phlebolymphology of the Siena Hospital, directed by Prof. Giuseppe Botta, as part of the specific program of "Clinical management of Lymphedema" was visited and taken care of a woman with post-ECMO groin lymphocele.

O.S., a 45-year-old female with idiopathic pulmonary fibrosis with severe impairment of lung function, waiting to receive a bilateral lung transplant, has been undergoing for a long period of time an extracorporeal membrane oxygenation procedure, also known as ECMO, due to the worsening of his clinical condition and the appearance of an ingravescent breathlessness, which put his life in serious danger. ECMO, of venous type (VV), was carried out by incannulation of the common left femoral vein in the groin and placing the second cannula for the reinfusion of oxygenated blood into the left jugular vein. Submitted subsequently in February 2018 to lung transplant surgery, the postoperative course was performed regularly with discharge of the patient and resumption of normal daily activities after an adequate period of convalescence. Keeping the patient under close follow-up with clinical and laboratory examinations performed initially every week, in April 2018 two months after surgery a slight increase in limb volume is found during a clinical check-up of lower left. In the suspicion of an interesting thrombotic process the deep venous circle of the lower left limb is required to our welfare structure to perform an ecocolordoppler of the lower limbs, which highlights in the inguinal region the presence of a lymphocele in the form of a liquid, isoecogen, collection, with no flow to the velocimetric survey, with the approximate size of 8 x 5 cm. The common femoral vein is unscathed by endoluminal thrombosis with negative CUS, but is reduced by caliber likely by compression of the lymph accumulated in the subcutaneous tissue of the inguinal region. The lymphatic collection grows rapidly in the following days, reaching the size of a large orange, which swells the groin of the patient, which is swollen, elevated, coated with pale and warm skin to the thermo-tact.

In order no to subject the patient to conditions of drug-induced immunodepression for the recent lung transplant

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she underwent a new surgery for the removal of the groin lymphocele, it is decided at first to practice a percutaneous guided echo drainage of lymphatic collection. This drainage of lymphocele was carried out three times on a weekly basis with the evacuation of more than 100 ml of lymph for session, without having any satisfactory reduction in lymphatic collection. At this point it is decided to continue with the conservative treatment, but it is introduced into the residual cavity after the guided echo aspiration of the lymph a sclerosing substance and precisely 4 ml of lauromacrogol 400 to 3%, associating a compressive dressing with a certain difficulty given the inguinocrural location of the collection. This treatment is repeated for another 2 weeks consecutively and we begin to notice a progressive reduction of about 20 ml at a time of the amount of lymph sucked in each session, until after another 3 percutaneous drains residual in the bag a minimum content of 2-3 ml of lymph. At the clinical and ultrasound control of the patient 6 months after lung transplant surgery there is no trace of the groin lymphocele and it is highlighted in the place of the previous cavity only a compact hyperecogen area in the absence of any liquid content.

Discussion

Extracorporeal membrane oxygenation, more simply called ECMO, is an extracorporeal life support technique capable of providing prolonged cardiac and respiratory support to people in whom the heart and lungs are no longer able to provide adequate amounts of gaseous exchanges or blood perfusion, in order to sustain life (3). ECMO, which works by artificially removing carbon dioxide and oxygenating red blood cells mechanically removed from normal body circulation, has been used in the past predominantly in children (4), but today it is beginning to be increasingly used in late-stage treatment of patients with severe heart and/or lung failure (5-7) and in postoperative support of patients following surgery (8). There are several technical modes of ECMO, but the 2 most common are venous-artery ECMO (VA), typically used in patients with heart failure, and venous-venous ECMO (VV), typically used in patients with respiratory failure. In the first case a cannula is placed in the common femoral vein of the right or left to drain venous blood, which is oxygenated outside the body and then returned to the arterial system by a cannula placed in the common femoral artery on the right or left. In the second case the first cannula is still placed in the common femoral vein of the right or left, but the second cannula necessary for the reinfusion of oxygenated blood is placed in the internal jugular vein of the right or left. In both cases, the femoral vein common to the groin is incannulated, usually using the percutaneous technique according to Seldinger's procedure, more rarely by surgical incision of the skin and subcutaneous tissue.
Complications of ECMO are most frequently represented by neurological lesions, such as cerebral hemorrhage, subarachnoid hemorrhage or on the contrary ischemic infarction with hypoxic encephalopathy that can lead to the death of brain tissues, and then again from life-threatening bleeding of the patient due to both the necessary continuous infusion of an anticoagulant, such as heparin, and platelet dysfunction induced by the same heparin. Severe complications such as perforation of the vessel with secondary bleeding, arterial dissection, distal ischemia of the lower limb, wrong position such as the venous cannula placed inside the artery, can occur more rarely during the cannulation of the vessels. Rare, but possible, a complication that affects the lymphatic system and that leads to the formation of the blood cell post ECMO.
The term groin lymphocele means a cystic collection, with the inner part of the wall free of endothelium, due to the leakage of lymph in the groin region for the injury of one or more lymphatic vessels during the procedure of extracorporeal oxygenation to membrane. This complication of ECMO is not very frequent, given that about 16% of patients (9) who have undergone this procedure experience lymphocele formation, but its management remains controversial.
The management of the groin lymphocele provides mainly three options: 1) the first to be preferred in small lymphoceles is spontaneous reabsorption; 2) the second involves the use of sclerosing substances that occlude the lumen of the lymphatic vessel; 3) the third option delegates to surgery the treatment of large volumetric lymphoceles (10-12).
The sclerotherapy of lymphoceles, which is the option chosen by the Authors in the described clinical case, has been a procedure known since 1982 when it was first described by Pope (13), who successfully introduced into a patient, obtaining healing, sodium-tetradecil-sulfate within the lymphatic sac after suction of the lymph.
This method (14,15) is currently taking on an increasingly important role in the management of post-ECMO lymphoceles, because it allows, as in the described clinical case, outpatient management of lymphatic complication, avoiding a new surgery in patients who are in conditions of drug-induced immunodepression for the recent lung transplant suffered.
The choice between the sclerosing agents of the lauromacrogol 400 (16.17) was motivated by the fact that its irritating and flogistic properties well adapt for the purpose of closing damaged and drinking lymphatic vessels, but in the literature many other substances are reported for their sclerosing use, such as iodopovidone (18,19), bleomycin (20,21), tetracycline (22,23), doxicycline (24-26), erythromycin (27), ethanol (28-31). Special attention should be paid at the execution of the procedure, which is good to be done under ultrasound guidance, because the eventual input or rather the leakage of the sclerosis liquid outside the cystic bag can lead, in addition to immediate pain, skin necrosis, especially when very high concentrations of the sclerosis substance are used, nor should the possibility of allergies to the sclerosing substance with possible anaphylactic shock be overlooked.

Conclusion

In the personal experience, as in the similar one of other authors, the non-aggressive treatment of the post ECMO groin lymphocele, using in consecutive sessions the endocavitary injection of lauromacrogol 400 to 3% after guided echo aspiration of the lymph with subsequent local compression of the groin region, proved to be a very effective and safe procedure in obtaining the patient's healing, without resorting to surgical treatment of the lymphocele itself.

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