DROP FOOT, AN UNEXPECTED COMPLICATION OF VAGINAL HYSTERECTOMY

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SUMMARY

Drop foot due to common peroneal nerve injury is a rare complication that can occur after gynecologic and colorectal operations which are performed under lithotomy position. In the operations performed in lithotomy position, common peroneal nerve, depending on its anatomy, is in danger for compression and traction at the level of the head of the fibula and may be injured. Especially prolonged operation time, factors such as history of smoking, alcoholism, diabetes mellitus, history of familial neuropathy and subclinical neuropathy have been claimed to increase the risk. In this article, we aimed to discuss common peroneal nerve injury after vaginal hysterectomy with literature review, presenting a diabetic patient, who developed drop foot after vaginal hysterectomy and fully recovered after four months of physical therapy.

Keywords: *common peroneal nerve injury, drop foot, lithotomy*
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DÜŞÜK AYAK, VAJİNAL HİSTEREKTOMİDEN SONRA GELİŞEN BEKLENMEDİK BİR KOMPLİKASYON

ÖZET

Nervus peroneus communis hasarına bağlı olarak gelişen düşük ayak, litotomi pozisyonunda yapılan jinekolojik ve kolorektal operasyonlarından sonra gelişebilen nadir bir komplikasyondur. Nervus peroneus communis, litotomi pozisyonunda yapılan operasyonlarda, anatomisine bağlı olarak fibula başı seviyesinde bası ve germe tehlikesi ile karşı karşıya kalmakta ve hasara uğrayabilmektedir. Özellikle operasyon süresinin uzun sürmesi, sigara kullanımı öyküsü, alkolizm, diabetes mellitus, ailesel nöropati öyküsü ve subklinik nöropati gibi faktörlerin bu riski artırdığı iddia edilmektedir. Bu yazıda, vajinal histerektomi sonrası nervus peroneus communis hasarına bağlı düşük ayak gelişen ve fizik tedavi ile dört ay sonra tamamen düzelen diabetik bir olgu sunarak, literatür eşliğinde tartışmayı amaçladık.

Anahtar kelimeler: *düşük ayak, litotomi, nervus peroneus communis hasarı*
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INTRODUCTION

Drop foot due to common peroneal nerve injury, although seen more frequently in gynecological surgery performed when the patient is in the lithotomy position, is a rare complication that can develop after colorectal surgery as well[1-4]. It is reported that neuropathy of the lower extremities following operations performed when the patient is in the lithotomy position occurs in 1/3608 cases[2]. Additionally, it is also maintained that the condition may develop when the patient is in a supine position and that this risk is more pronounced in surgeries of long duration and if the patient has a history of diabetes mellitus (DM)[5].

Many studies report that surgery-related neuropathy may occur due to compression, traction or ischemia and that in particular, common peroneal nerve is in danger of compression and traction because of the anatomy of the nerve[6,7]. The common peroneal nerve winds superficially around the neck of the fibula and then divides after this point into two sections, the superficial peroneal nerve and the deep peroneal nerve. While the superficial peroneal nerve is made up of only sensory fibers, the deep peroneal nerve is mostly composed of motor fibers[8]. In general, the point at which the common peroneal nerve is most sensitive to pressure at the head of the fibula where it lies superficial[7].

This article has aimed to discuss, in the light of the literature, a case where a diabetic patient developed right drop foot due to common peroneal nerve injury after a vaginal hysterectomy.

CASE

A 49-year-old patient, presenting at the Adnan Menderes University Obstetrics and Gynecology Polyclinic with the complaint of having vaginal bleeding and a 4x3 cm mass in the genital region was found to suffer from third degree uterine prolapse and a bleeding mass (submucosal myoma? endometrial polyp?), prolapsed from the cervix, that was thought to originate from the endometrium. In the ultrasonography examination, the uterus was 97x61x73 mm in dimension, endometrial thickness was 11 mm, and the left ovary was found to be of normal dimensions and a simple ovarian cyst of a dimension of 36x41mm was seen in the left ovary. Vaginal hysterectomy and cervical mass excision were planned. Before the operation, specimens from the bleeding mass in the patient's cervix and from the endometrium were taken for a biopsy, after which pathological examination reported the mass to be benign. As the patient had a history of Type- II DM, she was admitted into the clinic for regulation of her blood sugar. She was started on insulin therapy and her blood sugar was monitored. The patient remained in the clinic for the time it took to regulate her blood sugar and bring it to a level where she could undergo surgery, which was accomplished in 14 days. She was taken into surgery under general anesthesia and while in the lithotomy position, cervical mass excision, total vaginal hysterectomy, right salpingo-oophorectomy, left ovarian cystectomy and left partial oophorectomy, and colporrhaphy anterior surgery were performed. The removed left ovarian cyst was sent to pathology for a frozen-section and the result was reported as benign. The pathological examination of the cervical mass was reported to be sub-mucosal leiomyoma. On the first day postoperatively, an orthopedic consultation was requested when the patient began to drag and shuffle her right foot while walking. A physical examination of the patient showed complete weakness in the right foot dorsiflexion. Diminished sensation was found in the dorsum of the right foot and in the anterolateral part of the leg. The patient was thought to have common peroneal nerve injury-related drop foot and the required treatment began by the appropriate clinic. The report of the patient's electromyography (EMG) revealed findings consistent with a severe partial lesion in the right peroneal nerve and a moderately severe partial lesion in the right tibial nerve. Regular physical therapy was recommended to the patient, who was then discharged. In the EMG taken two months postoperatively, it was observed that the speed of peroneal motor transmission had slowed down at the proximal and that there was a reduction in amplitude. A needle EMG that was performed showed a loss of motor unit potential and denervation potential in the tibialis anterior muscle. The biceps caput breve muscle was observed to be normal in the examination and the conclusion was reported as findings that favored partial axonal degeneration in the peroneal nerve, possibly due to injury at the level of the fibula head. The patient's physical therapy continued. About four months after the operation, it was observed that

the motor weakness in the right leg and the loss of sensation had disappeared and that the patient had completely recovered from drop foot.

DISCUSSION

Common peroneal nerve injury may appear not only in the lithotomy position[1-4]. but in the supine position as well[5,9-11]. One study reports three patients who were observed to have common peroneal nerve injury following liver surgery, stating that the condition developed even though the patients underwent the operation in the supine position. The study asserted that the risk involved increases when surgery time is longer and when there is a history of DM[5]. Although rare, common peroneal nerve injury has also been identified in situations related to obstetrics. Macrosomia and malpresentations such as occiput posterior have been associated with the postpartum appearance of drop foot[12]. In addition, it has been reported that common peroneal nerve injury develops when the second stage of labor[13] is prolonged or after a long period of pushing down[14,15].

In a review of the literature, we see that the risk factors for motor neuropathy of the lower extremities have been identified as prolonged surgery in the lithotomy position, a history of smoking, alcoholism, DM and peripheral vascular disease[4,11]. Aside from these, other significant risk factors in the development of neuropathy of the lower extremities are a history of neuropathy in the family and the presence of subclinical neuropathy in the patient before the operation[16,17]. A prolonged operation in the lithotomy position is defined as more than 2-4 hours[1,4]. In the present case as well, the obesity of the patient, together with the cervical mass excision + total vaginal hysterectomy + right salpingo-oophorectomy + left ovarian cystectomy and left partial oophorectomy + anterior colporrhaphy surgery, all performed in the same session, resulted in surgery that lasted 3.5 hours.

In diabetic patients, even though blood sugar levels are regulated before the operation is performed with the patient in the lithotomy position, it should not be forgotten that these patients may be more prone to developing common peroneal nerve injury because of neuropathy that may have developed previously as a condition related to chronic diabetes. Moreover, in the light of the fact that most diabetic patients may be suffering from arteriosclerosis, it is known that arteriosclerosis makes the common peroneal nerve more sensitive to ischemia[18]. In the present case, the patient's DM had been left uncontrolled for some time. It is thought that because of high blood sugar, the patient may have developed previously peripheral nerve disease. Another point that must be stressed is the importance of a preoperative neurological examination. It is reported that in many cases subclinical neuropathy has been detected with a neurological examination prior to surgery[18].

Clinical findings are important in diagnosing common peroneal nerve injury and an EMG is also useful. Painless drop foot, lost or reduced sensation in the dorsal side of the foot and lateral sides of the leg are generally observed. There is also complete or partial weakness in foot dorsiflexion. Plantar flexion and inversion are generally normal. Besides diagnosis, EMG is also invaluable in the monitorization of the patient's recovery[19]. In the EMG of the patient in the present study, it was reported that the findings were consistent with a severe partial lesion in the right peroneal nerve and a moderately severe partial lesion in the right tibial nerve. In the report of the EMG taken two months after the operation, it was stated that there was partial axonal degeneration in the peroneal nerve, possibly due to injury at the level of the fibula head.

It is recommended that surgery performed in the lithotomy position is completed in a short time. The optimal lithotomy position is the position where the hip is in abduction with minimal external rotation and the knees are in moderate flexion[4]. It is important that the most sensitive point for the common peroneal nerve (the fibula head) is supported with a soft pad and prevented from direct contact with a hard surface. At the same time, the surgical assistant should be discouraged from leaning on the patient's knees so that possible pressure on the nerve can be prevented[20]. Despite all the measures taken, it may sometimes not be possible to prevent common peroneal nerve injury. Warner et al. report that neuropathy could not be prevented even though the common peroneal nerve was supported at its most sensitive point (fibula head) with a soft pad during the operation and the patient was placed in an optimal lithotomy position even the patient had no neuropathy previously[4]. In our case, common peroneal nerve injury occurred even though

the patient's legs were suitably positioned, an adequate support was provided under the legs with a compress, and great care was taken to avoid compression.

Common peroneal nerve injury generally responds to conservative treatment. Patients' motor functions can be completely restored within 3-6 months with physical therapy without sequela[4,5,9]. In the present case as well, it was observed that with physical therapy, the drop foot had completely healed approximately four months after the operation.

In conclusion, it is believed that the unregulated state of DM in our patient and the prolonged surgery increased the risk of common peroneal nerve injury and caused drop foot. We believe it is very important that in patients at risk, the patient and family be given detailed information before surgery that is performed in the lithotomy position. It is our belief that the risk can be reduced if adequate support is provided under the leg especially under the fibula head in the lithotomy position and be careful to avoid compression and an effort is made to complete the operation in a short period of time.

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