THERAPEUTIC APPROACH TO PATIENTS WITH LOWER LIMB AMPUTATIONS

Authors:

Drd. Pate(Seicaru) Geanina-Florina, University Titu Maiorescu

Prof. univ. dr. Ungureanu Florin, University Titu Maiorescu, Doctoral School of Medicine

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Abstract

The pain experienced by patients and the behaviors associated with this injury will then be presented, as well as psychological comorbidities such as mood disorders and adjustment difficulties. The work of mourning is long and emotionally demanding. You may experience all sorts of emotions. But know that there is no right or wrong reaction. Each person is unique and reacts in their own way. What you feel and express will gradually allow you to let go of who you were "before" and envision who you want to be "now." Amputation triggers numerous psychological processes in the person who undergoes it. Psychological support offered in specialized facilities complements rehabilitation, helping the individual to overcome shock and emotional distress, cope with trauma, and regain their place in daily life.

Introduction

As a preamble to this article, it is important to note from the outset that amputation and its consequences are rarely addressed in the literature. The objective of this article, however, is to provide an overview of the issues surrounding amputation, drawing on the existing literature and beginning with some epidemiological data. The pain experienced by patients and the behaviors associated with this injury will then be presented, as well as psychological comorbidities such as mood disorders and adjustment difficulties. Finally, we will discuss potential interventions and, in particular, the various aspects of psychological work with amputees. This chapter will be illustrated with excerpts from interviews with amputees and professionals working in the field of amputation.

Although upper limb amputation (hand, forearm, upper arm) is often more disabling than lower limb amputation (foot, leg, thigh, pelvis) for various reasons (balance problems in the case of arm amputation, possible loss of the dominant hand), this chapter will focus on lower limb amputation, as it accounts for 86% of amputations, compared to 14% for upper limb amputations. It should be noted, however, that most of the points discussed (apart from epidemiological data) are applicable to both types of amputation.

Epidemiological data concerning amputation are rather limited…

The psychology of foot amputation includes the necessary grieving process to accept the loss, the need to readjust to new sensations and mobility, and the management of emotions such as anxiety or depression. Psychological support, guidance from medical teams, and support groups are crucial for navigating this process and adapting to a new identity and a new body.

The loss of a loved one is similar to the loss of a loved one, or even to one's own death, which is why we speak of a grieving process.

Chapter 1 It's about "living with it."

The work of mourning is long and emotionally demanding. You may experience all sorts of emotions. But know that there is no right or wrong reaction. Each person is unique and reacts in their own way. What you feel and express will gradually allow you to let go of who you were "before" and envision who you want to be "now."

- *First, denial, then shock.*

You minimize or ignore this painful reality, which generates profound anguish. You tell yourself, "No, it's not possible."

- *The time for anger and revolt.*

Protest, even rage, follows denial. You express your suffering through irritability, intolerance, and aggression toward your loved ones and caregivers.

This emotion corresponds to the attempt to return to your previous physical state. It is all the more intense because the prosthetic fitting, often difficult due to a fragile stump, only serves to confront you with the painful reality of loss.

- Depression

Depression often follows irritation. It comes as a form of healing. It's an awareness of the irreversible nature of the loss. It allows you to surrender to sadness, to mourn what you have lost.

- Bargaining or negotiation

This is an attempt to escape the situation or delay the unfolding of events that seem insurmountable. You create a distance between yourself and the daily experience of disability. These are internal negotiations aimed at changing the course of reality. They correspond to the regaining of hope.

- Finally, acceptance

This is the beginning of the process: you realize the importance the prosthesis will have in your life. Gradually letting go of your old body image and your previous life allows you to envision a new relationship with things and people, and to invest in the future. The amputation of a limb will lead to changes that must be accepted in many areas of daily life: work, sports, leisure, and your emotional and social life. It's about rethinking your relationship with your new body image, your new abilities and limitations, and your new status as a "disabled person."

The psychological dimension also encompasses the way others see us: not just those close to us, but those we might encounter every day, in the street, at work, in shops, or in our former collective lives. And this works both ways: the way others perceive the amputee and disability in general; and the way the amputee receives in return, which they accept to varying degrees. It's not simple, especially in a culture obsessed with appearances. Just as the amputee must go through the stages mentioned above, those around them, even the most distant, must also go through stages of acceptance. They can also turn away. A look can help, but it can also symbolically kill. An amputee is not just an individual; they are an issue for their entire environment, even for society as a whole. The ADEPA association, among others, offers opportunities to address these issues, thanks to the shared experience its members can share. The following pages also address these issues at the level of close relatives.

Your family and loved ones are also deeply affected by your amputation: the grieving process applies to everyone around you. During your hospitalization and rehabilitation, you are no longer involved in your family's daily concerns.Friends may be inclined to protect you, treat you like a child, avoid you, or even create a rift. They, too, have their own path to acceptance.

However, they can help you envision life outside the hospital setting, and you can help them as well. The daily struggles your loved ones share with you, and the discussions you have about finding solutions together for adapting to life at home, will allow everyone to consider how to "live with" this new body.

Amputation triggers numerous psychological processes in the person who undergoes it. Psychological support offered in specialized facilities complements rehabilitation, helping the individual to overcome shock and emotional distress, cope with trauma, and regain their place in daily life.

A Matter of the Body

Far more than a mere shell, the body is a whole: it doesn't simply appear to us as a shape, a bodily schema. The body speaks to the brain, and the brain interacts with the body. For example, it frequently happens that a patient "forgets" their amputation and falls when standing up: the body has changed, but the information has not yet been fully integrated by the brain, or perhaps it is a form of denial of reality. It will take time, sometimes a long time, for recognition and acceptance.

The Trauma of Amputation

Amputation is a brutal loss of this illusion of immortality that is constitutive of the human psyche. The amputee has, quite literally, "put one foot in the grave." Moreover, some patients are concerned about what has become of their amputated limb.

Specific Mechanisms and Symptomatology

Amputation, whether the result of an accident or a specific pathology, triggers several mechanisms. Some are observed almost systematically in these patients: a mixture of grief and traumatic disruption. Initially, amputees seem stunned, in shock, as if psychologically numb. This mechanism is observed clinically through asthenia, depression, but also sometimes aggression or euphoria.

In most cases, a renewal will follow.

Rehabilitation and the Patient-Caregiver Relationship

Arrival at a rehabilitation center marks a new stage in the amputee's journey. Desired and driven by the desire to regain autonomy, it is nevertheless often experienced as a trauma. The mirror effect of encountering other amputees leads to a brutal realization of the reality of the world of people with disabilities. Two strategies emerge among patients: either accepting the disability and embracing it, or the destiny.

Psychological Support

Each patient, influenced by their culture, constructs a unique narrative around their amputation: from anger to resignation, including feelings of injustice or guilt; there is always a desire to make sense of the traumatic event. Interviews with the psychologist provide a framework for processing their story and the psychological tensions it entails, as well as for releasing the painful emotions associated with the amputation.

Chapter 2 Most frequent causes/ medical

If you are affected, you are not alone. In Germany, some 30,000 to 40,000 amputations are performed each year, mostly of the foot. Among the main causes of foot amputations are diabetes, specifically diabetic foot syndrome, and serious accidents, such as those at work or in traffic. But obstructive arterial disease, better known as "smoker's leg," also plays a major role.

The number and causes of obstructive arterial disease have remained the same for years. The reason? More and more people are living longer, and consequently, there are more and more people with diabetes mellitus. However, because treatment has improved in recent years, the number of amputations is not increasing. In Germany, more than 20,000 amputations each year are attributable to diabetic foot syndrome.

How is a forefoot amputation performed?

Collaboration between surgeons, internists, chiropractors, physical therapists, and orthotists is essential for an optimal amputation. Because the most important thing for your future life is being able to stand and walk with your foot as normally as possible.

Amputations today are performed according to the following principle: "as much as necessary, but as little as possible." The surgeon, under anesthesia, removes as much tissue as needed to ensure you are as mobile as possible afterward. The doctor makes an incision in the skin, removes the diseased tissue and bone, shapes the stump, and closes the wound. The more healthy tissue that is preserved, the greater the benefits for you.

In principle, the surgeon only attends the pre-operative consultation to explain the procedure for the forefoot amputation. Therefore, they don't know your entire medical history and cannot influence what will happen after the amputation. After the forefoot amputation, you will be cared for by your general practitioner or specialist. Some time later, an orthotist will come to provide you with your prosthetic devices. Together, you will decide which level of amputation is best for your case. The type of amputation has a significant impact on what is possible with your foot after the operation. The surgeon's main role is to perform the amputation in such a way that you can be as active as possible afterward.

Today, the question is no longer how, but precisely where the surgeon begins the amputation and how they shape the stump. This aspect is extremely important, as the stump must then be able to be used without pain and must not be subjected to friction to prevent any soreness. To achieve this, the surgeon "pads" the bone with muscle and leaves enough skin to close the stump without tension. If possible, the scar is placed on the top of the foot to avoid stress and friction.

In the best-case scenario, amputation of one toe is sufficient. In all cases, the surgeon attempts to preserve the entire metatarsal bone. If the head of the toe joint cannot be saved, the corresponding metatarsal bone must also be (partially) removed. Doctors then refer to this as a "ray." The loss of a ray significantly impacts the ability to stand and walk. Without a prosthesis, it leads to postural abnormalities. If all the metatarsal bones are affected, the surgeon must also remove them all. To avoid unequal bone lengths, a rounded stump is created. This also facilitates the subsequent fitting of a custom-made prosthetic foot.

Even if the amputation affects the tarsal bones or even the entire tarsus, the surgeon attempts to create a rounded stump to simplify fitting with a prosthesis. In all these cases, the ankle is preserved. With a custom-made forefoot prosthesis, the foot can generally bear weight again. You can stand and walk. When the ankle is also amputated, but not the knee, it is called a transtibial amputation. When the knee is also involved, it is called a transfemoral amputation. In principle, the surgeon who performs the operation decides on the level of amputation, in consultation with the orthopedic surgeon. However, to prepare for long-term prosthetic fitting, it is helpful to involve the orthotist/prosthetist in this decision prior to the amputation.

Let's be honest: you won't be in great shape after the amputation. You'll have to cope with a significant loss and may experience a loss of self-confidence. You'll need to get used to new bodily sensations.

After a forefoot amputation, your stability changes. Part of the leverage you need to walk is missing. Initially, you'll have difficulty walking and standing. As a precaution, you'll place your foot less firmly on the ground with your stump. You'll likely develop postural abnormalities to compensate. It's therefore crucial to learn about available assistive devices in a timely manner. These devices will help you regain your normal movements.

You might feel ashamed, or perhaps you'll find it difficult to be seen in public with your amputated foot. Prosthetics can help you adapt more quickly to your new situation. A forefoot prosthesis offers freedom of movement in your ankle joint. This freedom will also allow you to perform almost natural movements.

Your biggest challenge will likely be maintaining a social life and getting used to your new bodily sensations. You have every reason to be confident, though. After all, who can boast of having gone through what you have?

As soon as your forefoot amputation takes place, you'll begin the journey back to your normal life. To quickly regain your ability to walk, cycle, or drive, the wound must heal properly and your muscles must regain strength. This requires both strength and patience. The first few weeks are crucial for how you will manage your life with your amputated limb.

After the amputation, you will initially need to remain lying down for a few days, avoiding putting any weight on your foot. A medical team will be there to support you very soon. Rehabilitation can then begin. No one can tell you in advance how long it will take for the wound to heal or how long it will take for you to walk again, drive, or return to work. However, experience shows that all doctors will tell you that the more active and positive you are, the faster you will progress during rehabilitation. Initially, all efforts are focused on healing. As soon as the healing process begins, you will work on your mobility with a physiotherapist to ensure your muscles remain strong and your joints remain mobile despite the long period of inactivity. Later, they will guide you through specific movements and strengthen the muscles in your residual limb so you can walk safely with a prosthesis.

The physiotherapist has another important role: to help you train yourself to feel your foot stump. Your brain isn't used to your stump and, initially, can't process the nerve signals. However, it's essential for your health that you accurately feel your foot. Once the wound has completely healed and you can put weight on the stump, you'll be fitted with a prosthesis, which you'll need to gradually get used to.

During a transition phase, you may receive a forefoot offloading shoe. This allows you to walk without putting too much weight on the wound. As part of your rehabilitation, you will receive occupational therapy. The occupational therapist will help you improve your dexterity and perform movements related to daily life and your work. Their support will help you better control everyday movements.

Rehabilitation also includes participation in gait training, guidance from a professional coach, a psychologist, and a family counselor. Your rehabilitation also involves analyzing your lifestyle: Is your diet healthy? Do you smoke? If you manage to overcome an amputation, you can also quit smoking. Want to bet?

After your forefoot amputation, you must initially remain lying down with your foot elevated to allow blood to return to your heart. During the operation, the blood and interstitial fluid that accumulate around the wound must be gradually drained.

An elastic bandage facilitates this drainage. It applies even pressure without opening the wound. The wound is checked daily for any inflammation or congestion, and the bandage is also changed daily. The healing process is therefore continuously monitored by specialized staff. The bandage plays another important role: it shapes the stump so that it can later bear weight. This is why the bandage should always be applied by professionals. It's important to remember that a forefoot amputation is a major procedure and the wound is considered severe. Complete healing can take weeks or even months. Wound healing can be accompanied by complications, as is often the case with patients suffering from diabetes. When diabetes is the cause of an amputation, diabetic foot syndrome also hinders healing. Time is your best ally at this stage.

In the case of smaller amputations, custom-made insoles may suffice. An orthotic insole is not intended to restore function, but in the case of much less extensive surgery, it is sufficient in certain circumstances to stabilize the foot.

A silicone forefoot prosthesis allows for free ankle movement and is individually fitted. Silicone forefoot prostheses are individually and specifically adapted to your residual limb by the orthotist. They fit like a glove. Ankle movements are unrestricted. Your foot is fully mobile. All movements feel natural. Recent studies demonstrate that the muscles are also more active than with other prostheses. Thanks to the flexible material, it is possible to walk longer distances and wear regular shoes.

Some doctors and orthotists recommend custom-made shoes crafted by an orthopedic shoemaker. However, please ensure that this is truly the best option for you. Not only is it rather conspicuous, but it can also present drawbacks since ankle movement is restricted. Walking in this type of shoe is not always very flexible and can be uncomfortable. Orthopedic insoles, also made by an orthopedic shoemaker, are more discreet. This version also supports the ankle, so you cannot wear standard shoes.

The Bellmann prosthesis, made by an orthotist, allows for greater mobility. Using a sock, you put on a prosthesis composed of several layers of foam. This device does not cover the top of the ankle joint. It offers other advantages such as its light weight and shape, which allow you to wear ready-made shoes. However, the appearance of the Bellmann prosthesis cannot replicate that of your other foot. It is therefore clearly visible as a prosthesis. Furthermore, its material wears out very quickly. After two years, you will need a new prosthesis, and the sock can cause friction, which can be bothersome.

The Different Types of Foot Amputations

Not all types of trauma will require similar surgical interventions.

In fact, an amputation is named according to the type of cut it involves.

Below are listed the surgical amputation procedures that affect the foot or part of the foot:

- Transmetatarsal amputation: This operation aims to remove a portion of the forefoot from the middle of the metatarsals.

- Chopart amputation: Although rarely performed, this type of surgery involves the removal of the front part of the talus and calcaneus.
- Lisfranc amputation: This involves the removal of all the toes and metatarsal bones.
- Syme amputation: This surgical procedure allows for the complete removal of the foot by incising the joint between the leg and the foot.
- Following any of these procedures, the doctor may recommend the fabrication of a prosthesis or the use of a specialized orthotic device. Complications of a Foot Amputation

Obviously, this treatment has significant repercussions on the body and the patient's overall quality of life. Physiotherapy sessions are necessary to become familiar with the prosthesis or the partially amputated foot.

At the same time, a newly amputated person should remain attentive to the appearance of symptoms that could become problematic:

1. Pain in the stump
2. Dry skin
3. Skin that appears inflamed
4. Foul-smelling fluid discharge from the wound
5. Opening of the surgically closed wound
6. Excessive sweating near the stump
7. Bruising or redness on the stump

A "phantom limb" sensation, where the missing limb still seems to be present

If one or more of these signs are identified, it is recommended to consult a healthcare professional to prevent potential complications. Such a device will compensate for some of the foot functions lost during the amputation.

Conclusion

Amputation imposes transformations and adjustments on patients on psychological, physical, familial, social, and professional levels. From the trauma to the ordeal of reconstruction, it is a singular and challenging event. Psychological support in a rehabilitation center is therefore conceived as an attempt to temporarily act as a container for the overwhelming excitation within the patient's psyche, until they recover.

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