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CASE REPORT

Lymphatic damage by mechanical trauma in hand and pension benefit concession: case report from Brazil

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ABSTRACT

The case presented consisted of one of the medical assistance expert's reports in the scope of the Federal Court and reached the grant of benefit-sickness benefit with subsequent conversion to retirement. Noticeable was the unusual nature of the mechanical trauma, considering that the forceful action did not receive more attention initially because of the small intensity of the applied force and the reduced extension of the anatomical area affected. The incapacitating damage was of lymphatic order in the dominant hand. The methods of qualitative exploration of the data made available in the case file and literature review were used for the analysis. The objective is to present an unusual condition in which the damage dispenses verifications through imaging tests and, in itself, allows the establishment of a causal link. The conclusion was that the collection of professional data, a history of the alleged incapacitating condition and a well-performed physical examination suffice to reach a conviction about the need to grant social security benefits in cases such as this.

Keywords: *Lymphatic oedema; compensation; social security benefit; causal nexus.*

INTRODUCTION

The work of medical expert analysis in the social security scope aims to reach the perception of some condition(s) capable of determining, among other conditions, incapacitation for work. Several diseases or traumatic sequelae can be seen and their relationship with the data of professional profile makes it possible to understand or not the occurrence of a state of incapacitation that can be total or partial, permanent or temporary. About the concrete case to be presented, it is inserted in the social security context employing a lawsuit against the INSS, since in the medical examination of that body there was no evidence of the incapacity for work usually exercised by the applicant. Thus, the judicial appeal required a new expert assessment, which will be duly described in this case report. For this, the expert of the case made use of a detailed anamnesis of the factual situation that culminated with the alleged incapacity, professional analysis and specific physical examination of the lesion and its repercussions on the victim's work status. The damage seen was due to mechanical trauma. At first, with no greater initial severity due to the small anatomical extent reached and the low impact suffered. However, the affected area consisted precisely of some vessel pathway of the lymphatic system, which eventually determined a large and limiting lymphatic oedema of the dominant hand–which, secondarily, resulted in ankylosis of the fingers. Based on the collected data, it was considered a permanent partial incapacity that due to the other aspects involved 53 years old victim with a dominant hand paralysis and no profile for inclusion in the Professional Rehabilitation Program–redirected the expert diagnosis for a situation of permanent total disability.

This paper reports a case of incapacity for work resulting from the trauma of a mechanical nature that, despite being of a partial permanent nature, resulted in an understanding of the occurrence of permanent total work incapacitation.

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METHOD

The information contained in this article was collected from the procedural documents and medical expert's report and literature review. The shortage of subsidiary data like image examination did not compromise the expert evaluation, given the unequivocal existence of alleged damage and its correspondence with the reported trauma. Work Accident Communication was drafted promptly. Thus, it was possible to establish the causal link properly.

Case report (Anamnesis)

MJP, 53 years old lady with incomplete first degree disability wanted a grant of sickness assistance, with subsequent conversion to Invalidity Retirement with the INSS– National Institute of Social Security. The benefit was denied as the inability to work was not found. The petitioner filed a complaint with the Federal Court (TRF1) against the INSS, alleging that she did not take advantage of the injury that prevented her from carrying out the manual movements. She needed sufficient manual forces for loading and unloading boxes. The victim is right-handed. While putting effort to cut plastic loops holding some boxes, she had slipped his knife with the detachment of his right hand and made the back of the same hand against the corner of metal furniture. She had the CAT registration promptly. Earlier she had a feeling of loss of muscle strength, marked swelling and intense pain. Not improving with the treatments undertaken – dressings, cold compresses followed by hot compresses and anti-inflammatory – progressed to the point of determining the paralysis of all the fingers of that affected hand, stagnating them. Also, oedema did not regress till eight months leading to a post-traumatic condition by classical mechanical action, with the probable affectation of vessels of the lymphatic system – oedema – and of possible regional innervation. The grant of the requested benefit was considered appropriate and was installed with the Disease Onset Date and disability Start Date and beginning dates coinciding temporally due to the causal relationship between the trauma, the damage and the incapacitation resulting from them.

Physical Examination

Permitted with the preserved general state, without indication of systemic changes worthy of note, specifically, right hand with intense lymphatic oedema, associated with finger drop paralysis and determination of ankylosis of the same. The pincer movements were all impaired by the manual closing. No active movements of right-hand fingers were seen. The evaluated person is right-handed. Nothing else was noticed noteworthy.

Diagnostic hypothesis: Sequela of mechanical trauma determining probable lymphatic oedema and ankylosis of fingers of the right hand with association with possible damage of interosseous branch (**Fig. 1**). Another possibility is oedema itself restricting the mobility of the affected hand, with secondary paralysis due to the lack of regional musculature.

E**xams lying down and/or presented**: Being a person with financial difficulties and dependent on care by SUS – Unified Health System, the records only had medical reports. No imaging evaluation of the vascular system, mainly lymphatic and by the electrophysiological study of the regional innervation was performed. All expert evaluations were based on historical data and physical examination.

Figure 1 Showing the damages of hand

DISCUSSION

The Social Security Law grants of sickness benefit with subsequent Retirement due to mental or physical inability. On the other hand, they are not able to have their hands reassigned or do not present a profile for inclusion in the Professional Rehabilitation Program (PRP).[1]

It is mandatory to carry out the expert evaluation. As published in the media, "Before thinking about joining the INSS, the insured must file an administrative proceeding with the institute. It is only after the refusal that the beneficiary should bring the Judiciary."[2]

It is understandable to analyse the harm in conjunction with occupation data and the possibilities of another occupation. It is only the possibility of professional rehabilitation that would allow the concession of the benefit in question.

In this case, the victim suffered a mechanical injury due to a blunt action on the right hand. This trauma resulted in

immediate regional involvement with intense oedema, ankylosis of fingers, the impossibility of palmar opening and pincer movements. Resulting oedema of chronic lymphatic type did not subside after eight months, with all possible treatment. Because she was financially weak, could not carry out further studies to investigate the case.

However, from the medical expert point of view for retirement purposes, such examination reports proved to be dispensable, since what was required was limited to verifying the damage – unquestionable in this case**.** Lymphedema, once instituted, leads to a chronic condition. (Mayall, 2000).[3]

Bergmann,[3] reveals that the diagnosis of lymphedema can be obtained through subjective and objective criteria through history and physical examination.

Thus, it is confirmed that the method used in the expert evaluation of the case in question followed the dictates of a consensual protocol of a society of specialists and therefore, validated is how such verification of work incapacity proceeded. As for the causal aspects, Bergmann,[3] citing Camargo (2000), said that these are due to external causes. Severe tissue lesions may lead to the development of lymphedema when they affect the structure and / or functioning of lymphatic vessels. Chronic venous insufficiency, when severe, may overwhelm the lymphatic system, or be associated with congenital insufficiency of the lymphatic vessels. In cases of recurrences of erysipelas, lymphangitis or cellulitis, lymphedema can be established due to infectious and inflammatory conditions.

Thus, external causes are capable of promoting direct affectation of the local venous system with lymphatic overload, coupled with a secondary inflammatory process, are sufficient for the development of lymphatic oedema and its consequences. And on lymphedema, it further stresses that acute forms are temporary conditions without skin alterations. Chronic being the common form is usually insidious, with the absence of pain, not being associated with the erythema. Chronic lymphedema is irreversible.

It was well established that the understanding of chronicity was achieved by the fact that eight months had elapsed since the beginning of the process, (since the limit of six months to the end of the acute phase was established).

Tacaniet al.[4] confirm both the possible traumatic cause and the chronicity aspect, as Lymphedema is a chronic, severe and progressive condition characterized by the accumulation of proteins in the interstitium due to deficiency of the lymphatic system, which may be due to congenital abnormalities of the lymphatic vessels (primary lymphedema) or acquired, such as trauma, lesions, lymphadenectomies or infectious and chronic diseases (secondary lymphedema). A possible diagnostic method is related to Lymphoscintigraphy which can be interpreted in three ways: quantitative, which evaluates the transport of the radiopharmaceutical about time; qualitative, which visually analyses the images; and semi-quantitative, that associates data of the radiopharmaceutical transport dynamics with the time of onset of radioactivity. The qualitative evaluation is one of the most used in the interpretation of lymphoscintigraphy with 70 to 94% of sensitivity and 100% of specificity, presenting accuracy greater than 90%. In this study, we opted for qualitative evaluation, due to the high specificity and ease of visual interpretation of lymphoscintigraphic images.[5]

This test has a high cost and thus impossible for patients who depend on their achievement through a vacancy with the SUS. As for the aspects of the proposed neurological injury, the radial nerve has a motor branch responsible for innervation of the triceps, and the radial long and short extensors of the carpus for the movements of the fingers and, if injured, causes the inability to extend related body segments. The NIP is a motor branch of the radial nerve. It has six sub-branches, which are responsible for the innervation of the extensor digitorum muscles, the index extender, the long and short extensor of the thumb, the long abductor of the thumb, the supinator and the ulnar extensor carpi. The branch to the supinator muscle exits before the Froshe arcade, while the other branches emerge after the Froshe arcade. Because of this subdivision, Spinner divided the compression of the NIP into two types; type I, in which the compression of all the branches occur, and type II, in which the isolated compression of some branch can occur. The diagnosis of neurological lesions is clinical, it is part of the physical orthopaedic examination. In the examination, our patient presented the extension of the active wrist with radial deviation, since the radial extensors of the wrist are innervated by the radial nerve, but it was unable to extend the fingers and thumb, demonstrating a compromise of the posterior interosseous nerve, which is responsible by innervation of the common extensor of the fingers and the index finger, long and short extensor and long abductor of the thumb and ulnar extensor of the carpus.[6]

Since the diagnosis is clinical – physical examination – and does not depend primarily on any type of instrumental evaluation, it can be understood that in the present case the paralysis of the fingers of the right hand, in gout, can rather configure such an injury. However, we know that conducting an Electroneuromyography could contribute to this understanding, although its realization may suffer interference that may contaminate the results. According to Marchetti and Duarte,[7] citings Enoka, electromyography monitor the electrical activity of excitable membranes, representing the measurement of the action potentials of the sarcolemma, with voltage effect as a function of time. The electromyographic signal is the algebraic summation of all the signals detected in a certain area and can be affected by muscular, anatomical and physiological properties, as well as by the control of the peripheral system and the instrumentation used to acquire the signals.

The dispensability of the aforementioned study seems clear since the history associated with the physical neurological examination is capable of identifying the damage and,

especially if we take into account that it is an examination that promotes painful discomfort for the patient and represents a high financial cost.

Thus the physical signs are compatible with the reports about the mechanical trauma suffered and in analysis with age, the low level of schooling and the professional aspects of the same point to their total work incapacitation and permanent, especially if we take into account the absence of a profile for the reallocation of labour or its inclusion in the Professional Rehabilitation Program (PRP).

CONCLUSION

The physical limitation was unquestionable and the history allowed the establishment of a causal link between the injury and the referred trauma. The physical evaluation was sufficient for an expert diagnosis of incapacitation at work. Neurophysiology and imaging tests proved to be dispensable both for the invasive nature and for the high financial cost they represented. The combined analysis of socioeconomic, physical examination and professional data led the expert reasoning for the occurrence of such incapacitation as being of a total and permanent nature, allowing the granting of the Sickness benefit with subsequent conversion to Invalidity Retirement with the INSS.

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