



and Physiotherapy, Medical University of Lublin between 1997 and 2006. The analysis featured the non-physiological loads of the cervical osteoarticular system caused by generalized spasticity and pathological motor habits. The speech system was assessed during therapy at the Department of Logopedics and Linguistics, Maria Curie-Skłodowska University between 1986 and 2006. The speech disorders were evaluated according to the Mirecka and Gustaw dysarthria scale. The intellectual development was examined using the Wechsler verbal scale for adults at the Department of Developmental Psychology and Neurolinguistics, Maria Curie-Skłodowska University in 1992. MRI (Picker Eclipse) of the cervical and upper thoracic spine was performed on the 31<sup>st</sup> October 2000 and 9<sup>th</sup> February 2006 while of the lumbosacral spine on the 26<sup>th</sup> April 2004 (Department of Interventional Radiology and Neuroradiology, Teaching Hospital 4 in Lublin).

## RESULTS

The patient presented spastic walking, full contact and intellectual function (IQ = 127) impaired communication resulting from severe spastic dysarthria. His functioning was assessed at 2 according to PRS. The patient is an IT specialist, therefore has to spend several hours a day in front of the computer. The neurological examination revealed a mean spasticity of 2.0 according to the Ashworth scale. The other symptoms included double athetosis, mainly left-sided, impairing precise movements. Moreover, the left-sided tone was found to dominate. This side is characterized by significantly higher tendinous reflexes in all muscles of the left upper and left lower limb. The examination also showed increased mandibular reflex, bilateral pharyngeal reflexes and palatine reflexes without side predominance. Additionally, the Babiński sign on the left side and lack of plantar reflex on the right side were observed. Furthermore, the clinical picture disclosed numerous manifestations suggestive of cervical and lumbar asthenia. The vertebro-basilar insufficiency and cervical myelopathy were detected, which manifest themselves in dizziness, disorders of concentration, visual acuity and balance. This leads to knee drop attacks; for several years the patient has also been falling on his elbows and face with legs straight. Recently, the patient developed adiadochokinesis on alternating movements; he cannot climb the stairs, his self-reliance and work are markedly impaired. Moreover, progressing dysfunction of the rectal and urethral sphincters was observed. Due to pharmacotherapy used, the posterior cerebral circulation markedly improved and spasticity decreased. However, increasing spinal pain poorly responds to physio- and pharmacotherapy. The patient experiences chronic neck and nape pains, often radiating to the arms along C<sub>5</sub>, particularly the left one. He also complains of numerous paraesthesias, radiating burning pains below the right scapula and sacral pains. During the NDT-Bobath therapy, persistent pathological infantile reflexes were observed: slight symmetric tonic neck reflex and significantly increased asymmetric tonic neck reflex on the right side. The several-year therapy limited them substantially. Moreover, numerous asymmetries in the musculoarticular system, lack of transverse coordination and rapidly increasing spasticity on rotational movements were found. Increased spasticity manifests itself as excessive tone of muscles responsible for active trunk control. The posture and statics examinations revealed pathological backward and left dislocation of the centre of gravity in the standing position, which is visible in the body weight distribution – 6% on the left vs. 40% on the right lower limb. MRI of the cervical spine showed decreased physiological cervical lordosis. With the progression of the disease, its complete lack was observed leading to kyphosis. Progressive degenerative lesions, i.e. advanced, multi-level spondyloarthrosis and intervertebral disc degeneration at C3/C4, C4/C5 and C5/C6 were found. At C4–C5, increasing stenosis of the vertebral canal and lack of fluid space with massive, central-left-lateral protrusion of the intervertebral disc compressing the spinal cord, and limited left vertebral foramen were disclosed. The examination conducted in 2000 visualized spinal ischemia at this

level. At C3-C6 and Th2-Th5, changes in disc hydration were demonstrated whereas at C5/C6 – the central-left protrusion of the intervertebral disc with limited left intervertebral foramen. Moreover, central protrusion of the intervertebral disc was observed at C3/C4 and C6/C7. MRI of L-S spine revealed lack of physiological curvature of the lumbar spine and degenerative changes in Th9/Th10, L4/L5 and L5/S1. Central-left-lateral protrusion of the intervertebral disc with visible compression of the dural sac and reduction of the left intervertebral foramen was observed at Th9/Th10 whereas at L4/L5 and L5/S1, central, massive protrusion of the intervertebral disc with compression of the dural sac and bilateral reduction on intervertebral foramina were demonstrated. After decompression of the spinal cord, transient marked improvement of the patient's neurological state was initially observed, attributable to general anaesthesia. The improvement was characterized by significantly decreased spasticity and better fluidity of movements. The incidence of episodes of balance disturbances and vertigos was found to be lower. According to the patient, immediately after surgery, his concentration substantially improved and persistent fatigue subsided. A month after surgery, general spasticity returned to the baseline. Therefore, general motor coordination deteriorated and balance disturbances developed. Moreover, dysphagia and difficult mastication occurred, which significantly reduced the quality of life of the patient during convalescence. The authors believe that this is attributable to substantial limitations in physical activities during the postoperative period and the cervical collar-related immobilization. The only forms of postoperative activation of the musculoarticular system were systematic stretching and postisomeric relaxation of muscles, which are still (almost one year after surgery) the basic physiotherapeutic techniques of rehabilitation.

At present, due to the therapy administered, the patient starts to control the tone within the region of his face, neck and shoulder girdle. General spasticity was found to be slowly yet systematically decreasing. Substantially improved manual efficiency was observed. Thanks to the physiotherapeutic techniques used, the problems related to difficult mastication and dysphagia were markedly alleviated. Additionally, the control of balance and posture significantly improved, which was visible on re-examination of the body posture demonstrating proper location of the centre of gravity and uniform distribution of body weight at knees bent. Reduced general spasticity and incomplete control of muscular tone changes within the cervical spine and shoulder girdle might have caused persistent vertigos, which the patient has been complaining of for three months. According to the patient, surgery and systematic physiotherapy relieved pain sensations in the cervical spine. Furthermore, the function of sphincters improved, as there were no recurrent episodes of urethritis. The cervical spine stabilization and cessation of analgesics contributed to increased lumbar pains.

#### CONCLUSIONS

1. Spasticity and pathological motor habits were the main cause of the progressive spinal disease in our patient. However, it is still unknown whether this cause was decisive and whether earlier rehabilitation and specialist treatment of spasticity could have prevented the effects of spinal degenerative changes.
2. Contrary to popular opinion, ICP does not exclude the use of modern surgical and physiotherapeutic techniques even with adults, which is demonstrated by our case.
3. The following question should be posed: how can lifestyle and future life plans of an ICP patient be changed when education, although connected with long-term sitting position, is the only chance to become self-dependent and computer skills are the only possibility to learn a trade.
4. It is worthy to consider prophylactic orthopaedic devices, which could reduce destructive effects of pathological loads of the spine during long hours of sedentary learning and working.

## REFERENCES

1. Craft M. J.: Siblings as change agents for promoting the functional status of children with cerebral palsy. *Develop. Med. Child Neurol.*, 32, 1049, 1990.
2. Gustaw K., Mirecka U.: Dyzartria w chorobach neurodegeneracyjnych. Skala Dyzartrii w diagnozie pacjenta ze zwyrodnieniem mózdkowo-oliwkowym. *Logopedia*, 27, 153, 2000.
3. Józwiak S.: Mózgowe porażenie dziecięce – stale aktualny problem leczniczy i społeczny. *Med. po Dypl.*, wyd. specjalne, 2001.
4. Levitt S.: Rehabilitacja w porażeniu mózgowym i zaburzeniach ruchu. PZWL, 2000.
5. Rutkowska E., Stawińska T., Łuckiewicz C.: Zajęcia korekcyjno-kompensacyjne w akademickim wychowaniu fizycznym. In: K. Górnica (red.) *Korektywa i kompensacja zaburzeń w rozwoju fizycznym dzieci i młodzieży*. T. 2, 237, Biała Podlaska 2005.
6. Szczygielska-Majewska M., Stawińska T., Majcher P. et al.: Zapotrzebowanie na edukację w zakresie prozdrowotnego stylu życia osób z dolegliwościami bólowymi kręgosłupa. *Annales UMCS, Sect. D, vol. 60 suppl.*, Lublin 2005.
7. Jasik J.: Niedoskonały–niepełnosprawny człowiek w organizacji dążącej do doskonałości [w:] E. Skrzypek (red.), *Sposoby osiągania doskonałości organizacji w warunkach zmienności otoczenia – wyzwania teorii i praktyki Excellence 2006*. Kazimierz Dolny 2006.
8. Jasik J.: Niepełnosprawność a cele życiowe – zarys problemu. *Annales UMCS, Sect. D, vol. 59 suppl. 14, 2, 345*, 2004.
9. Jasik J., Adamczyk K., Lorencowicz R.: Trudności z komunikacją interpersonalną jako jedna z przyczyn biernej postawy w życiu społecznym osób niepełnosprawnych. *Annales UMCS, Sect. D, vol. 60, suppl. 16, 3, 26*, 2006.
10. Łuckiewicz C., Stawińska T., Jasik J., Majcher P.: Miejsce motywacji w procesie rehabilitacji dziecka z mózgowym porażeniem dziecięcym. *Annales UMCS, Sect. D, vol. 60 suppl.*, Lublin 2005.

## SUMMARY

Infantile cerebral palsy (ICP) is a syndrome caused by brain injury occurring at the stage of active brain development. It includes motor dysfunction which influences bone system in negative way. The aim of this study was to present an adult patient with ICP. The description includes the neurological deficit, degenerative changes of the spine and therapy of the patient. In summary, spasticity and pathological motor habits were the main causes of the patient's progressive spinal disease in the patient. However, the ICP does not exclude the use of modern surgical and physiotherapeutic techniques even with adults. The prophylactic orthopaedic devices which could reduce destructive effects of pathological loads of the spine may be used.

## Opis przypadku osoby dorosłej z mózgowym porażeniem dziecięcym

Mózgowe porażenie dziecięce (MPD) jest zespołem spowodowanym uszkodzeniem mózgu w okresie intensywnego jego rozwoju. Elementem składowym zespołu jest dysfunkcja ruchowa, która negatywnie wpływa na układ kostny. W pracy przedstawiono przypadek osoby dorosłej z MPD. Opisano stan neurologiczny, zmiany zwyrodnieniowe w obrębie kręgosłupa oraz terapię pacjenta. Podsumowując, spastyczność i patologiczne czynności ruchowe były główną przyczyną postępującej destrukcji kręgosłupa u pacjenta, jednakże MPD nie wyklucza możliwości zastosowania nowoczesnego leczenia chirurgicznego oraz technik fizjoterapeutycznych nawet u dorosłych. Profilaktycznie mogą być stosowane pomoce ortopedyczne, zmniejszające destrukcyjne następstwa patologicznych napięć.