A survey of the “medical” articles in the *European Spine Journal*, 2007

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Accepted: 7 December 2007 / Published online: 8 January 2008
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Introduction

A wealth of informative studies appeared in the European Spine Journal in 2007. As usual, most of them are surgically oriented. They will be covered by my friend and colleague, Robert Mulholland. I have selected the articles which primarily interest the non surgically-oriented reader as well as researchers in the field of spinal pathology. It is also evident that all practitioners involved in the care of patients with spinal diseases must be aware of the surgical news and vice versa.

Bob Mulholland and I have worked together to make our “readers’ digest” as complementary and as exhaustive as possible. We hope that our reviews will provide a useful overview of the 2007 ESJ publications, and encourage readers to revisit some selected papers, discover new

aspects and thereby stimulate further discussion and research.

Before starting my review, I wish to remind the reader of the Editorial in the March issue, a tribute to Alf Nachemson who died in December 2006. There is no doubt that Alf had an enormous impact in spine care. His dedication to the advancement of science and to the highest quality of care for our patients should be an example for all of us.

Basics

Biochemical and biomechanical changes implicated or resulting from disc degeneration may lead to nociception and pain production. For this reason, treatment strategies are being tested and developed experimentally in attempts to restore discs or retard disc degeneration.

The article by Paesold et al. [20] reviews the state of the art in this field. In the first part of the paper, the authors summarize the data concerning etiology and molecular mechanisms of discal degeneration, including degrading enzymes, growth factors and cytokines. In the second part, the various treatment strategies are described and discussed, including direct injection of active substances, gene therapy to modify gene expression of the cells, and implantation of autologous or mesenchymal stem cells. Potentials and shortcomings of the various techniques are discussed in depth. As a conclusion, the authors indicate the future directions of biological repair. They question whether the activated or transplanted cells will be able to survive in a hostile environment created by high mechanical stress and restriction of nutrition. A future direction of treatment strategy is brought up: strategies targeting pro-inflammatory pathways able to transform a symptomatic

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into an asymptomatic disc degeneration. Although still in infancy and progressing slowly, biological therapy of degenerated spinal disorders is a fascinating and stimulating approach for the future.

Another basic article concerns the resistance of intervertebral discs to metastatic cancer. Studies have shown that the intervertebral disc is usually resistant to invasion by the cells of metastatic disease. The mechanisms involved in this resistance, including avascularity of the disc or mechanical barrier by high collagen content are hypothetical. In a fine experimental piece of work published in the September issue, Park et al. [21] have proposed a new biochemical explanation for this remarkable resistance. This work was based on the hypothesis that binding of Fas ligand (FasL), a protein of the tumor necrosis family produced by the disc cells, with Fas-bearing receptor cancer cells would provoke apoptosis of the cancer cells. In order to test this hypothesis, the authors have performed an experimental study. Fas-bearing breast cancer cells were cultured with supernatant of annulus fibrosus cells containing high concentrations of FasL. The results reported in detail, as well as the methods used demonstrate that Fas-bearing cancer cells undergo apoptotic cell death by Fas ligand produced by the disc cells. This very interesting basic study has received the SSE Basic Science award.

Vascularization of the disc is an important issue. The normal disc is avascular apart from the most peripheral fibers of the annulus fibrosus. However the presence of blood vessels in degenerated discs is still a matter of controversy. Nerlich et al. [16], using an immunohistochemical technique, have studied 42 midsagittal intervertebral disc specimens obtained at autopsy at various ages (infantile, adolescent and adult). In addition, disc tissue samples obtained in 20 patients operated for a discal herniation were also studied. In infantile discs, the blood vessels penetrated the discs after perforating the cartilaginous endplates. No blood vessels were found in adult discs with the exception of the periphery of the annulus. In contrast to previous studies, no neovascularization was observed in the inner annulus fibrosus and nucleus of degenerated discs, with the exception of a few discs with complete destruction. These findings are in contrast with previous observations, which describe the presence of blood vessels associated with nerve fibers in deeper annulus and nucleus in degenerated painful discs. However, the authors acknowledge that small capillary networks were frequently associated with clefts and tears of the annulus and that ingrowth of capillaries was also observed in degenerative lesions of the endplate. Considering the clinical relevance of this topic, future research is needed, as innervation and vascularization are implicated in the pathogenesis of discogenic low-back pain.

Spinal stenosis

Surgical treatment of spinal stenosis is usually decided after an initial period of conservative therapy. Various predictors of surgical outcome have been studied and discussed. In the article by Ng et al. in the February issue [17], the authors investigate the effect of pre-operative duration of symptoms on the surgical outcome. One hundred patients were recruited and followed up for 2 years with results evaluated on standard outcome measures. There was a significant improvement of ODI and VAS at 1 and 2 years. There was also a significant association between symptoms-duration and improvement of ODI and VAS. In this cohort, subgroup analysis showed that patients operated after 33 months had a less favorable outcome. The results also indicate that patients with a self-rated excellent result had a shorter duration of symptoms. In the discussion, the authors review the few previous articles examining the optimum timing for decompression. They also wisely point out that other factors such as natural evolution, comorbidities, and complications of surgery should be considered and discussed in the indications of the surgical treatment.

The influence of psycho-social factors on the outcome of surgical treatment of lumbar spinal stenosis is discussed in an excellent paper by Sinikallio et al. [27] in the July issue. The influence of depression is studied in 99 patients who underwent decompression surgery for LSS. All patients were assessed preoperatively for depression by the Beck Depression inventory questionnaire. They also completed questionnaires evaluating pain and physical functioning. Before surgery, depression was detected in 20% of the patients. Two interesting associations were disclosed: firstly, there was a strong association preoperatively between depression and high Oswestry disability score and intensity of pain. Secondly, patients with continuous depression had less improvement in pain and walking ability than those without depression, and those who had been successfully treated for depression. Surgery for LLS is usually performed in old patients and depression is not exceptional in this group. This paper points out that when confronted with a poor surgical result, assessment for depression is strongly recommended.

The same group of investigators has examined self-reported life satisfaction and associated factors in 100 patients selected for decompressive surgery [26]. The results, published in the July issue, are somehow surprising as 25% of preoperative patients were reported to be dissatisfied with their life. This score is almost identical to that of patients with coronary heart disease. The most important associated factor of dissatisfaction was somatic comorbidity, assessed as current or recurrent somatic diseases, including musculo-skeletal and circulatory diseases. Smoking and younger age were also associated with

dissatisfaction. These findings are important as life dissatisfaction is clearly implicated in the results of surgical treatment of LSS.

In the February issue, Tafazal et al. [28] report on a randomized double-blind study of the effect of nasal salmon calcitonin in the treatment of lumbar spinal stenosis. Forty patients with neurogenic claudication and lumbar stenosis on MRI were treated for 1 month either by nasal salmon calcitonin or by placebo spray. Results appreciated on ODI, VAS and shuttle walking test showed that at 4 weeks post-treatment there was no significant difference between the two groups in each of the outcome measures. The paper reviews the various studies of salmon calcitonin for treatment of spinal stenosis, including one randomized study by R. Porter using subcutaneous injections, which showed no therapeutic effect. As some other papers report the beneficial effect of injections of salmon calcitonin, the authors wisely conclude on the lack of effect of calcitonin by the nasal route. There is a good discussion on the pharmacologic properties of calcitonin.

Spinal tumors

Primary bone tumors of the spine are rare. Their relative incidence reflects that of the skeleton in general. Certain tumors show predilection for the spinal column (chordoma, osteoblastoma) but they represent a small proportion of spinal tumors. Because of the rarity of these tumors most of the publications are case reports. In the March issue of the journal, Kelley et al. [12] review the experience of the Leeds Regional Bone Tumor Registry. The survey covers 42 years since the establishment of the registry in 1958. One hundred and twenty-seven primary bone tumors are recorded, including adult and pediatric cases. The authors describe in detail the clinical features and the distribution of the tumors as well as the sex-distribution and survival of their series. Interesting information was disclosed when reviewing the data: firstly, the frequency of various tumors appeared to be different from previously published series. Secondly, the most important finding was that in 10 cases the original diagnosis was changed after review of the histology, as well as of the imaging studies in multi-disciplinary staff meetings. Moreover, the authors recall that new investigative techniques lead to the improvement of classification. This paper is important and should stimulate the establishment of such registries at regional, and hopefully European levels.

Prognosis in metastatic spinal disease is dependent on several interrelated factors. Several studies have stressed the difficulty of identifying the factors affecting survival of spinal metastasis from solid tumors. Prognostic variables

are particularly important to know in patients with progressive neurological deficits caused by disintegration of the vertebral elements, instability, and in patients with intractable pain resistant to radiotherapy and medications. In the paper by Sciubba et al. [25] published in the October issue, negative and positive variables are studied in a series of 87 women who underwent spinal surgery for metastatic breast cancer. Demographic, clinical, radiographic and histological data were respectively reviewed. Prognostic variables were assessed, using univariate and multivariate analysis. In this series, the hormone receptor status had a significant prognostic value as patients with estrogen-receptor positivity had a median survival time 3 times longer than patients with estrogen-receptor negativity. Other prognostic variables are discussed and compared with the other prognostic scoring systems of the literature. This is an important study, considering that breast cancer is the most frequent primary tumor causing cord compression and neurological deficits.

Intramedullary ependymomas are the most common intramedullary tumor, representing roughly 30% of these lesions. Gavin Quigley et al. [10] deal with the management of spinal cord ependymomas, excluding ependymomas of the cauda equina. The aim of this paper published in March is to evaluate retrospectively the outcome predictors and survival of a cohort of spinal cord ependymomas treated in a single institution. Seventy-nine percent of patients with complete excision had maintained or improved outcome, compared to 75% in the incomplete plus radiotherapy group. Surprisingly, in this group of patients extent of resection and radiotherapy did not influence the overall survival. Long duration of symptoms before surgery and poor preoperative Frankel grade are associated with poorer functional outcome. This paper is of particular importance as it stresses the key role of early diagnosis and management in a long-term good outcome.

Injections

Prevalence and clinical relevance of endplate changes in patients with chronic LBP have been demonstrated. Moreover, in several studies Modic I changes have been shown to be persistent with chronic LBP. Because Modic I changes are related to an inflammatory reaction of the subchondral bone adjacent to an inflammatory degenerated disc, it can be speculated that intradiscal injection of steroids could have a beneficial effect in patients with chronic LBP and Modic I changes. Based on this hypothesis Fayad et al. [9] have studied the clinical results of intradiscal steroid injections in a series of 74 chronic LBP patients with Modic changes. Patients were classified in three subgroups according to the type of Modic changes: type I (n

37), type I-2 (n 25), type II-1 (fatty changes, n 12). Results were self-evaluated on a VAS and on the Quebec disability score. At one month the reduction of pain intensity was significantly high in the Modic I group with a trend persisting at 6 months. The small size of the samples, the retrospective design, as well as the absence of control group are strong limitations of this study, calling for further controlled prospective studies. If the results are confirmed, intradiscal injections of steroid in well-selected inflammatory discopathies could be a short-term treatment for a sub-group of chronic LBP patients.

Transforaminal injections of steroids and/or local anesthetic are now commonly used as treatment for patients with radicular pain in the lumbar and cervical spine. An interesting paper published in the March issue deals with this subject. Anderberg et al. [3] have performed a prospective randomized study of transforaminal steroid injections for the treatment of cervical radiculopathy. Inclusion criteria were one-sided cervical radiculopathy with degenerative pathology at one or two levels on MRI, and a positive response to a prior selective nerve-root block at one or two levels. Forty patients were divided into two groups; one received Carbocain and Depo-medrol, the other received Carbocain and saline. Results were evaluated at three weeks after treatment, using a pertinent questionnaire covering the potential subjective changes in symptoms. At follow-up, there was no statistical difference between the two groups. However, the authors point out that 30% of the patients had a good result and discuss the beneficial effects of this procedure in their own experience and other open studies. They suggest further studies including differentiating sub-groups of patients with radiculopathies related to different pathologies such as soft disc, hard disc, or spondylotic foraminal stenosis. Absence of such MRI categories is the main drawback of the present study.

Natural evolution and treatment of LBP

Natural evolution is a gold standard for the determination of treatment. It was originally thought that 90% of all patients recover within 6 weeks, irrespective of type of treatment or no treatment. However recent studies report more pessimistic rates of recovery. In this regard, Bakker et al. [4] report in the July issue an interesting study of the natural course of an inception cohort of acute low-back pain in a series of 100 care-seeking patients. The episode lasted less than 6 weeks and there was no episode of LBP in the previous 12 months, therefore avoiding the bias of the mixed cohorts, including recent exacerbations of chronic low-back pain. Complete recovery was achieved at 3 months in only 40% of the patients; permanent or

recurrent LBP persisted at 6 months in 60%. This paper confirms the results of previous studies, indicating that acute LBP should be viewed as a persistent condition in many patients. Prognostic factors for persistent LBP were evaluated by the authors. In this study advanced age was protective, smoking was harmful; spinal mechanical loading measured with the 24HS was not a prognostic factor for persistent LBP.

Sick-listing and absence from work have a deleterious effect on natural evolution of LBP. Many good studies have demonstrated the strong influence of psycho-social and work-related factors on the decision to go back to work in employed workers. However, the numerous factors contributing to return to work are not well known. In this regard, Dionne and collaborators [7] have studied prospectively the determinants of “return to work in good health” in 1,007 workers with back pain who consult in primary-care settings. Appropriate measurements of numerous potential determinants were repeated at 6 and 12 weeks, and 1 and 2 years in patients consulting for LBP with absence from their regular work of 1 day or over. This study contains many interesting findings. Although in both genders fear-avoidance beliefs about work are associated with failure to return to work, and self-efficacy associated with success, the authors were able to demonstrate important gender differences in factors determining the return to work. This is an important finding with practical and clinical relevance, allowing to target more precisely the responsible determinants which are described in detail. I strongly advise a thorough and attentive reading of this paper, which also confirms the critical point of natural evolution at 12 weeks where the passage to chronicity and recurrences of pain is to be expected.

Numerous studies have demonstrated that chronic LBP can be a persistent and disabling condition. What can be done to modify this evolution? On the one hand, studies have shown the major influence of psycho-social work-related and occupational factors, and on the other hand chronicity could also be explained by persistence by the nociceptive input emanating from the nerve fibers of the degenerative disc. For this reason, medical therapies enabling devitalization of the nerve endings could theoretically alleviate the pain. With this in mind, Peng et al. [22] report in the January issue the preliminary results of intradiscal injection of methylene blue in painful degenerated discs. According to the authors, methylene blue has a capacity of nerve-endings destruction. Twenty-four subjects with discogenic chronic LBP were injected and followed up with a mean period of 18 months. Approximately 87% of the subjects reported complete disappearance or alleviation of LBP, with improvement in back functioning and duration of these beneficial effects during the follow-up period. This paper can be criticized for several reasons: absence of

control group, poor description of the imaging studies, selection of patients according to a positive discography. Outcome measures are based on VAS and ODI; it is not indicated whether the Oswestry score has been validated in China. Moreover it is a small-sized group of patients with no animal experimental studies to exclude neuro-toxicity in case of epidural leaking. At first glance I wondered how this paper with many methodological flaws had been accepted for publication and I hesitated to pinpoint the article. However, I finally did so considering that it could stimulate the authors and other groups to conduct more appropriate studies of this potentially useful procedure.

Low-back and neck pain

The study by Nyman et al. [18] published in May has explored the differences in sickness absence over a 5-year period among 817 individuals with either pure low-back disorders (LBD), or pure neck and shoulder disorders (NSD), or concurrent LBD and NSD. All subjects were working at the beginning of the study, and at both baseline and follow-up reported LBD and/or NSD. The study is constructed with an excellent methodology. Three potential confounders (age, gender, non-muscular skeletal disorders) are identified and a logistic regression analysis is used to evaluate the OR for sickness and absence in the three groups. The results are particularly interesting. The group of individuals with concurrent LBD and LSD had after adjustments the highest prevalence of sickness absence and of long-term sickness absence. These findings have important clinical relevance both in prevention and in treatment of patients with concurrent LBD and LSD.

Imaging

Recent studies have shown that Modic I changes of the endplates adjacent to an inflammatory degenerative disc are closely associated with persistent LBP. Interestingly, in the July issue Albert et al. [1] describe the evolution of the Modic changes following lumbar disc herniation. A total of 181 patients with radicular pain at baseline underwent an MRI of the lumbar spine. At 14 months follow-up after a period of conservative treatment, a repeat MRI was performed on 166 patients. The course of Modic changes observed on the initial imaging was studied, as well as its relationship with disc contour at baseline. Modic changes and persistent non-specific LBP were also compared. At 14-months follow-up, the prevalence of Modic type I changes had increased from 9% at baseline to 29%. Moreover at that time there was a strong association of

Modic changes with persistent LBP. This information has a clinical relevance, as the appearance of a Modic I change in patients with a discal herniation is predictive of an ongoing LBP.

Tumor cells entrapment in the capillary beds of bone marrow of the vertebral bodies is the first step of secondary tumor growth. Autopsy studies have shown that the incidence of occult metastasis is high [8]. In one study [31], 16% of total metastatic deposits were not visible on plain radiographs, calling for the use of further imaging studies in cancer patients. In this regard, I would like to draw the readers' attention to the article by Ghanen [11] published in the November issue. The aim of this paper was to compare the diagnostic value of MRI and FDG-PET in the assessment of bone-marrow spine infiltration in cancer patients. MRI probably increase the sensitivity of bone-marrow spine involvement over bone scintigraphy, usually prescribed as the initial evaluation in cancer patients. The authors have compared MRI and PET-scan in 35 cancer patients: solid tumors (n 26) and lymphoma (n 9). Infiltration of the spine, extent of disease and therapeutic implications are compared. Findings in the spine were concordant in 27 out of 35 patients. FDG-PET scan was false-negative in 6 patients with a positive MRI, and false-positive in 2 cases with negative MRI, no evidence of bone infiltration having been proven in the subsequent follow-up. In this series MRI appears to be a more sensitive and specific procedure to detect early spinal metastasis. I advise careful reading of this paper which also contains a good review of the literature.

A useful piece of information can be found in the article by Bommireddy et al. [5] in the January issue. The authors have studied the MRI scans of 15 patients in the early post-operative period after anterior cervical discectomy without fusion for radiculopathy or myelopathy. Post-operative scans were performed before and after contrast at Day 1, Weeks 6, and Months 6 after the operation. All patients had a satisfactory clinical result. The purpose of the study was to determine whether, as observed in post-operative lumbar surgery, changes including persistent mass-effect and deformation of the thecal sac despite relief of symptoms would also be disclosed early post-operatively at the cervical level. Persistence of an epidural mass at Day 1 was only observed in 2 out of 15 cases with disappearance at 6 months. However, persistence of foraminal narrowing was observed in 66% of the cases in spite of disappearance of the radiculopathy. Enhancement of the disc space was common and not indicative of an infectious process. More studies of this kind are needed to confirm these initial findings. It is obviously important to know the post-operative evolution of imaging in successful surgical cases in order to make an appropriate decision in case of an immediate post-operative complication.

Post-operative management after lumbar discectomy

Strong evidence for the usefulness of rehabilitation programs following surgery was shown a few years ago in a Cochrane review [19]. However, because of the lack of good studies no consensus exists concerning the contents of the programs and the beginning of the rehabilitation post surgery. Some centers do not advise any post-operative rehabilitation. The question is whether short and long-term global outcomes are influenced by rehabilitation. Should the program differ according to the age of the patients and/or the type of the operated pathology? Three papers deal with this subject. The 2007 SSE Award-winning paper by Mannion et al. [14] compares the effects on outcome at 2 years of two types of rehabilitation programs with no post-operative management. One hundred and fifty-nine patients, mean age 65, were followed after surgical decompression of the lumbar spine for spinal stenosis or disc herniation. Programs of physiotherapy consisted of either spine-stabilizing exercises or of mixed techniques. Programs were started 2 months post-operatively and lasted 12 weeks under the supervision of physiotherapists. In the self-management control group, patients were advised during the 12 weeks to keep as active as possible, doing the physical exercises they enjoyed. Patients were assessed at Months 5, 12, and 24 post-operatively on appropriate validated outcome measures. The main findings of the study were that compared to the control group, the two physiotherapy programs had no influence on the outcome. The methodology and study design as well as the text of this article are exemplary. The study deals with older people operated for stenosis or disc pathology, thus covering a broad spectrum of patients. The conclusion of the study should be good news for health economists.

In the January issue, Millisdotter et al. [15] report the results of a prospective and control study of training after surgery for lumbar disc herniation. Fifty-six patients participated in the study: 25 started a neuro-muscular customized stabilizing program two weeks after surgery; 31 patients started a traditional training after 6 weeks. At subsequent post-operative follow-ups, pain was reduced to the same extent in both groups but disability scores were lower in the early training group without any adverse effect. As suggested by the authors, a larger patient sample evaluated in a randomized trial remains necessary to demonstrate the beneficial effect of an early training program.

The article by Williamson et al. [30] describes an interesting survey of the post-operative in-patient and out-patient therapy following first-time lumbar discectomy. Evaluation was made through a questionnaire addressed to physiotherapy centers specialized in spinal surgery patients. The results indicate some consensus concerning

the in-patient physiotherapy, focusing on mobility and education to facilitate early discharge. In contrast, wide variation of policies are disclosed in the out-patient physiotherapy. Firstly, not all patients have access to treatment. Secondly, when physiotherapy treatment is available, content of treatment, type of exercises, number of sessions, duration of treatments are considerably variable. Exploring the literature, the authors summarize the main findings. Although there is evidence for intensive exercise programs beginning 1–2 months post-surgery, there is no consensus concerning post-operative restrictions and the content of rehabilitation. In their conclusion, the authors stress the need for good-quality studies to optimize the best post-operative physical and rehabilitation treatment.

After consulting these three articles, the readers will have to reach their own conclusions.

Synovial juxtafacet cysts: a question of terminology

Due to progress in imaging, there is an increasing frequency in reported synovial cysts in routine clinical practice. In the September issue, Christophis et al. [6] present a series of 58 cystic space-occupying formations of the spinal canal traditionally called “juxtafacet cysts”. The great majority of the cysts were located in the lumbar spine (n 55) and 3 in the thoracic spine. In an effort to identify the origin of the cysts, the authors described in detail the macroscopic findings during surgery. So doing, and according to the location of the cysts, they were able to distinguish joint cyst (n 32), flavum cyst (n 19), PLL (n 1), unclear (n 6). Based on the histological and histochemical findings, the authors identified two types of cysts: one with a synovial lining which is a true “synovial cyst”, and one without a synovial lining called “pseudo-cyst” or “ganglion cyst”. In the authors’ series, all ligamentum flavum, the PLL cyst, and the six unknown cysts were pseudo-cysts. Only 11 of the 32 resected joint cysts were synovial cysts. In the discussion and after an appropriate review of the literature, the authors point out that only 32 of the 58 cysts had an anatomical relation to the facet joints and because of the fact that only 11 of the cysts had a synovial-lining membrane, the authors propose that these formations should be called “cystic formations of the mobile spine”. In addition to the discussion of the correctness of the terms, there is a good description of the clinical symptoms and of the generally good results obtained by surgery.

Spinal ligaments ossifications

Calcification of the spinal ligaments can involve the anterior longitudinal ligaments commonly associated with

DISH, the posterior longitudinal ligaments, and the ligamentum flavum. These ossifications may be responsible for pain, myelopathy, and radiculopathy in a substantial number of patients. Until now, knowledge of the cause of these ossifications is not known. A nice piece of work reviewing the hypothetic factors involved in the pathogenesis is published in the August issue. Li et al. [13] update the present state of the art of the etiology of these disorders. Because of the similarity with bony outgrowths in a variety of other disorders, including systemic endocrine diseases, the role of glucose and fat metabolic hormones as well as calcium-circulating hormones is discussed in depth. Additionally, because of the association of ossifications of the anterior and posterior ligaments with acromegaly and gigantism, the effect of IGF 1 growth factor and BMPs are also suggested and studied. Water-fluorid levels and hypervitaminosis A, the latter being responsible for heterotopic calcifications, are also discussed. Identification of target cells in the spinal ligaments is another field of research. Finally, the authors recognize that at the present time the exact cause of OSL remains unknown, but is probably a multigenic and multifactorial disease, in which extensive ossification results in predisposed patients from an exaggerated response to various stimuli producing normal responses in other individuals. The review contains an excellent bibliography, which can be an appropriate source of reference for readers interested in this pathology.

Compromise of the cord in the cervical region can relate to ossification of spinal ligaments. Acquired stenosis of the thoracic spine is rare, and ossification of the ligamentum flavum (OLF) is a major cause of thoracic myelopathy. Fluorosis is a well-known but rare cause of OLF. As a reminder, an original article published in August by Wang et al. [29] reports 23 cases of operated OLF caused by fluorosis. This etiology was detected among a group of thoracic OLF patients, operated by the authors during a period of 10 years. All patients came from a high-fluorid area, had dental fluorosis, drank water with high fluorid levels, and had elevated rates of fluorid in the urines. In addition to OLF, all patients had at various degrees densification of bone and calcified entesopathies. Compared with other OLF, a larger number of thoracic segments were involved. Although fluoride is no longer added to water, fluorosis can be expected in some high-fluorid areas of the world.

Sciatica in the female patient

A review article by Al-Khodairy et al. [2] is an excellent reminder that lumbar disc disease is not the only cause of sciatica, especially in women. The authors have performed a literature search (1966–2004) of articles describing

sciatica related to gynecological, obstetrical or anatomical variations of female patients. Seventy-five articles were disclosed. After a brief anatomical description, the authors first report on the causes of sciatica during pregnancy and during labor. Sciatica, secondary to pathological conditions, including endometriosis and fibromyomas, are described with their dominant symptomatology. Exceptional but well-documented case reports of sciatica related to iatrogenic traumas (abdominal or vaginal surgical procedures) or to anatomical variations are mentioned. In their conclusion, the authors state that in the case of sciatica in female patients without evidence of discal herniation or stenosis, a thorough scanning of the course of the nerve and search for a gynecological pathology should be performed.

Electro-physiological studies

A new electro-physiological method for investigating lumbar radiculopathy has been published in the July issue [24]. Quante et al. have studied dermatomal laser-evoked potentials in 40 patients with a monoradicular radiculopathy and in 12 healthy subjects. In case of a monoradicular lesion, somatosensory-evoked potentials (SEP) obtained by laser (LEP) which stimulate the nociceptive fibers are able to detect earlier and more frequent radicular conduction abnormalities than the conventional SEP obtained by discreet electrical stimulation. The advantage of the LEP is to activate just one dermatome, compared with the conventional SEP, which activates a mixed pluriradicular nerve. In their study, the authors detect LEP abnormalities in 50–60% of the patients. In comparison, according to the literature, conventional SEP is able to detect these abnormalities in only 30% of the same category of patients. In their series, the authors have not compared the LEP technique with conventional SEP. The drawback of the LEP technique is that by definition the examination is slightly painful. Moreover, the laser stimulator is costly.

Cervicogenic headache

Headache in relation with degenerative changes of the upper cervical spine is accepted as an entity. However, the anatomic basis and the pathogenic mechanism of the pain is not completely understood. The paper by Persson et al. [23] published in July indicates that headache may also accompany cervical radiculopathies caused by nerve-root irritation in the degenerative lower segments (C5/C6 and C6/C7). This prospective study includes 275 patients with a cervico-brachialgie lasting more than three months, with a correspondant pathology on MRI. Occurrence of headaches was one of the clinical variables systematically studied.

Further, the compressed nerve roots underwent a selective nerve-root block with carbocain. Results are interesting. Firstly, before the nerve block, 161 out of 275 patients (59%) presented with a headache on the same side as the radiculopathy, in the occipital region, often irradiating anteriorly. Secondly, 58% of the patients had either total or significant reduction of headache after blocking of the nerve root generating the radicular pain. The paper also indicates that patients with radiculopathy and headache had more severe symptoms and disability than patients with radiculopathy and no headaches.

Conclusions

It is obvious that there are more papers than I have reviewed here which are of interest to non-surgeons. My selection is not only based on the scientific quality of the articles but also on their clinical relevance. I am sure that “medical” readers will enjoy reading the papers selected by Bob Mulholland, as surgical papers contain important information for medical practitioners.

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