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STUDIES OF POSTOPERATIVE METABOLISM IN THE KNEE USING INTRA-ARTICULAR FLUID ANALYSIS

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Under normal conditions the synovial membrane is well vascularized and acts as a dialyzing membrane between the joint cavity and the circulation. In arthritis the tissue environment becomes more ischemic and this may result in chondrocyte damage and even death at the articular surface. The response of synovial tissue metabolism to surgical trauma was investigated using postoperative synovial fluid analysis after two types of operation, medial meniscectomy and synovectomy. Analyses were also performed in nonoperated patients with traumatic effusion or chronic synovitis of the knee. It was found that the knee joint metabolism in chronic synovitis is shifted towards anaerobic glycolysis in both operated and nonoperated patients whereas meniscectomized and traumatic knees are considerably more capable of maintaining oxidative metabolism.

BASAL OSTEOTOMY OF THE FIRST METATARSAL BONE IN HALLUS VALGUS. EXPERIENCES WITH THE USE OF AO-PLATE

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For young patients osteotomy operations are frequently considered together with excision of the exostosis. A less favoured osteotomy method has been the basal, laterally based, wedge osteotomy, which was first introduced by Loison (1901) and Balacescu (1903). However, this operation is able to correct the metatarsus primus varus quite efficiently. To stabilize the correction we have added a small AO-plate for fixation. In addition plaster of Paris has been applied for 6 weeks. In 33 patients, 46 feet were operated on. There were 31 women and 2 men. Only two of the patients were over 50 years of age. Pain was the most frequent indication. A follow-up was made an average of 1.5 years postoperatively. Subjective results were good in 35 cases, fair in 9 and poor in one. Objectively the results were good in 36 cases and fair in 9. The follow-up of one patient is not yet completed. The mean period off work was 7 weeks. Metatarsus varus angle was reduced from 14.8° to 9.3° and halux valgus angle from 33.2° to 17.7°. Mt I–II distance was reduced from 13.7 mm to 10.2 mm. One wound infection was registered and one patient had postoperative oedema. A good functional and cosmetic result was achieved in most of the cases.

UPPER EXTREMITY DEFORMITIES COMBINED WITH ORO-FACIAL CLEFTS

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The series consists of 89 cases with upper extremity deformities among the 3,225 cleft patients born during the period 1950–75 and treated at our centre (see Table). Two-thirds of the patients had a cleft palate, including half of the males and nearly all of the females. The percentage of upper extremity deformities in the different types of oro-facial clefts was as follows: cleft lip 0.8, cleft lip and palate 1.6 (cleft of the secondary palate 3.5), branchial arch syndrome (lateral cleft) 5.2; the total average was 2.8 per cent. One-third of the patients were dwarfs, most of them diastrophic dwarfs. Only 11 cases of syndactylia, more complicated than average and among them four cases of Apert syndrome, were noted. The number of polydac-

tylia cases was also exceptionally low. Ten of the thirteen ectrodactylia/melia cases had multiple deformities. Three quarters of the 89 patients had other multiple deformities.

	Male	Female	Total
Oro-facial clefts	1,614	1,611	3,225
– Upper extremity deformities	53	36	89
– – Dwarfs	16	15	31
– – Pterygium syndromes[1]	6	4	10
– – Down syndrome	6	–	6
– – Syndactylia	7	4	11
– – Polydactylia	3	1	4
– – Ectrodactylia/melia	7	6	13
– – Brachydactylia	2	2	4
– – Other[2]	7	6	13

[1] Klippel-Feil, Sprengel, Bonnevie-Ullrich, Guérin-Stern, etc.

[2] Symphalangism, clinodactylia, flexion contractures, nail deformities, etc.

SPINAL FUSION AND THE CORRECTION OF EXPERIMENTAL SCOLIOSIS IN GROWING RABBITS WITH FREE PERIOSTEAL GRAFTS

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Experimental attempts to produce solid fusion of the growing spine with bone grafts have generally been unsuccessful. Spine fusion experiments have therefore failed to shed much light on the clinical problems of early spine fusion. Continued growth in the length of the spines of young rabbits routinely occurs after spine arthrodesis, in which gross pseudarthroses have developed at each interspace.

In our earlier studies a bony fusion was achieved in different regions of the thoracic and lumbar spine with free periosteal transplants. In unilateral fusions this caused a progressive scoliosis.

In the present study this new model of spinal growth disturbance was used in attempts to correct experimental scoliosis. When a progressive scoliosis developed, a free periosteal graft from the tibia of the same animal was transplanted to the convex side of the spine between the spinous and articular processes overlying the vertebral laminae.

With this method it was possible to achieve spinal fusion and stop the progression of experimental scoliosis. We conclude that with an early fusion a gradual straightening of slight or moderate scoliosis is possible.

SPINAL FUSION OF IDIOPATHIC SCOLIOSIS WITH FREE PERIOSTEAL GRAFTS: A PRELIMINARY REPORT

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The present operative treatment of progressive idiopathic scoliosis generally consists of the Harrington method and spinal fusion. The Harrington instrumentation gives a rigid fixation. In our previous studies free periosteal grafts have proved to possess a strong and fast bone-forming capacity both experimentally and clinically.

These observations led us to use free periosteal grafting in spinal fusion of scoliosis and spondylolisthesis.

The osteoperiosteal grafts were taken from the tibia with a sharp chisel. In this way it was possible to utilize the cambium layer cells and also the maximal growth potential of the graft.

A total of 55 patients were operated on. The mean age of the patients was 14.5 years. The fusion was performed in thoracic, thoracolumbar or lumbar areas. In 44 patients the indication for fusion was idiopathic scoliosis. The patients were allowed to walk on the second postoperative day with a Milwaukee brace and the brace was used for 6 months postoperatively.

Biopsies were taken during a second operation (4, 6, 8, 12 and 24 weeks after the transplantation).

The bone formation in the fusion area occurred through an enchondral process. It was stable and compact after 24 weeks (6 months).

HAEMATOMA OF THE ROOT SLEEVE

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In a postmortem study aimed at the evaluation of lumbosacral nerve injuries in fractures of the pelvis, a laminectomy was performed from LI to the sacra hiatus in five cases. In two cases, an incidental swelling of the root sleeve of the third left sacra nerve was found when the sacral foramina were exposed. The swelling in the root sleeve was a round subdural haematoma with a diameter of 2 cm, which appeared at the site of the posterior root ganglion. Histologically, a cystic cavity around the spinal ganglion and an acute haemorrhage at the site of both roots were seen.

The traumatic haemorrhage of the root sleeve thus occurred at the junction of the nerve root and the spinal nerve. Here the meningeal arrangement of the nerve root sleeve ends and the subarachnoid space does not extend beyond the spinal ganglion. The haematoma in the root

sleeve may compress the nerve roots, which are less resistant to compression than the peripheral nerves themselves.

These subdural haematomas on the sacral nerve root sleeve appeared to be caused by bleeding into a perineurial cyst. The cysts cannot be demonstrated by an ordinary lumbar myelography. A traumatic haemorrhage into the sacra perineurial cyst produces an expansion of the cyst and a compression of the nerve root. This mechanism of neurological defects as a complication of injuries to the lumbosacral spine and pelvis has not been described earlier.

THE TREATMENT OF LESIONS OF THE PLEXUS BRACHIALIS: A PRELIMINARY REPORT

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Twenty-five patients with plexus brachialis lesions were treated during the period November 1972–July 1976. The injuries were mainly traumatic lesions from traffic accidents. Careful preoperative examinations such as tests of muscle functions and sensibility, EMG, cervical myelography and histamine axon reflex studies were made.

The type of operation selected was a free nerve transplantation in 15 cases, suture of the plexus in one case, liberation in five cases and transposition of some intercostal nerves into the plexus in four cases. There are some encouraging results among the patients operated on during 1973–1974 but it is still too early—because of the long regeneration time—to make any firm conclusions about the usefulness of these painstaking operations which demand the teamwork of two orthopaedic surgeons and one microsurgeon and a good deal of time in the operating theatre.

FRACTURES OF THE OLECRANON: AN ANALYSIS OF 37 CONSECUTIVE CASES

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Thirty-seven olecranon fractures were treated from 1973 to 1975. Fifteen of the fractures were transverse, five oblique and 18 comminuted. The treatment was operative in all but two cases. Three cases were complicated by a superficial infection, and in three cases the internal fixation failed. The mean follow-up time was 2 years.

The results were evaluated as excellent in 13 cases, good in 7, fair in 13 and poor in two cases. Patients under 50 years did better than older ones, and the results for men were better than those for women. The transverse fractures healed, as expected, more satisfactorily, than the comminuted ones. In the comparison of methods of internal fixation, cerclage combined with two Kirschner wires was better than cerclage alone. An immobilisation of 3 weeks or less gave the best results.

We suggest that internal fixation with two Kirschner wires and cerclage should be the method of choice in most cases. Immobilisation should not exceed 3 weeks.