

FOREWORD

Brachial plexus surgery has a long history. At the beginning of the 20th century, some pioneering surgeons such as Thorburn, Kennedy, Fairbank, Gilmour, Lange, Spitz, Tuttle and Taylor took up the challenge to reconstruct the damaged brachial plexus in infants (at the risk of such patients' lives) followed by reconstruction in the adult. However, repair of injured brachial plexus was condemned by Sever in 1925 and 1927 as giving no values. Between the two World Wars, brachial plexus surgery was scarcely practiced. Residual deformities were operated upon after the recovery process. In the 1960s, microsurgical techniques and repairs were introduced in brachial plexus surgery. The "wait and see" policy has been replaced by aggressive early exploration of the plexus or a "see and repair" policy. World renowned orthopedic surgeons contributed to such a revolutionary change in brachial plexus surgery. Herbert Seddon in the UK, Hanno Millesi in Austria and Algimantas Narakas in Switzerland should be commended for their work in adults, and Alain Gilbert for his work in infants.

Current developments in diagnostic technologies have opened up a new horizon for brachial plexus repair. For example, cervical myelography, CT-myelography and MRI provide a clear image of root avulsion from the spinal cord, while electrophysiological studies at operation has taught us about the level, extent and severity of brachial plexus injuries in detail.

Various surgical innovations have emerged from the progress of accurate diagnosis of the lesion and have completely changed the former view of poor prognosis of the lesion. A few innovative procedures of wide use are: intercostal nerve transfer in a case with root avulsion to the musculocutaneous nerve and other nerves; and nerve grafts from

the cervical nerve with the postganglionic lesion. As a donor, the spinal accessory nerve, phrenic nerve or even the contralateral unaffected C7 nerve were reported as available. Owing to advances in brachial plexus surgery, both adult and infant patients can regain their normal function as well as their dignity as a human being.

However, potential recovery of the paralytic limb depends ultimately on accurate diagnosis, patient selection and surgical skill. Lack of any one of these prerequisites results in unrecoverable further damage in the patients.

High return and high risk, this is brachial plexus surgery. You cannot lay too much stress on the fact.

Thus two specialists with a high reputation in reconstructive limb surgery, Dr. Kawai and Dr. Kawabata, decide to publish a monograph entitled *Brachial Plexus Palsy*.

As detailed in its contents, brachial plexus palsy is comprehensively dealt with in both infants and adults. Surgical anatomy and historical review of brachial plexus surgery will give an accurate overview and scope of the problem. Clinical assessment and technical details will be of help to general orthopedic surgeons facing such a problem in patients. The authors are so cautious in treating paralytic limb that they have included chapters on various musculoskeletal reconstruction, including shoulder, elbow and hand surgery. Needless to say, rehabilitation modalities matching patients' functional level with pain management are introduced. Brachial plexus tumor and brachial plexopathy in breast cancer have also been included.

The authors also mention about the future of reconstruction of paralytic limbs at the turn of the new millennium. They expect forthcoming breakthroughs in severely paralyzed limb reconstruction in the next century, such as regulated nerve regrowth utilizing bioengineering products; and development of supporting devices equipped with sensor and actuator or robotic or cybernetic hand.

Meanwhile the patients suffering from brachial plexus injury of either traumatic or obstetric causes have been reported to increase in number, particularly in the developing countries. Bearing in mind serious social disadvantages and loss of dignity of the sufferer, we should be aggressive

in our efforts to strengthen the campaign against motor cycle accidents and birth palsy.

For that purpose, hopefully, this monograph will help primary physicians and obstetricians in learning much about the problem.

Keiro Ono, M.D.

Director, Osaka Koseinenkin Hospital

Professor Emeritus, Osaka University Medical School

Osaka, in winter of 2000