BONE CEMENT INCORPORATION WITH SCREWS FOR ANTERIOR STABILIZATION OF THE SPINE

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We did anterior decompression, vertebrectomy and adjacent disc removal for various kinds of anterior instability (eg. fracture, tumour) with or without neurological deficit. Spinal stability was restored by screws and cement incorporation in mushroom shape anchor in the vertebra above and below. We also applied bone graft anteriorly and laterally. The screw and bone cement will serve as and instrument for immediate spinal reduction and stabilization. The bone graft will take over these functions for life time stability. The experience with this technique during 8 year period (1985-1993) took a very encouraging result.

Since 1959, Knight was the first document the cases whom fixed the cervical spine with acrylic cement. The use of Polymethyl methacrylate in spine had become popular, the indication had been more widely including anterior and posterior stabilization in all region of the spine, as an adjunce to or instead of spinal stabilization and arthrodesis. It may be employed as a spacer, an internal slint or a fixation device. It is apparent that as the spacer, it supports compression loading, with stability against lateral bending and axial rotation, but it is not strong enough to withstand extension force, therefore, the construct should be protected against extension. Based on this basis that we have designed the construct which resist against compressive and tensile force by using screw and washer incorporated with bone cement anchor in the vertebral above and below the affected vertebra which removed during anterior decompression.

With the advent and development of better spinal instrumentation, which can achieve the goals of immediate postoperative stability as well as long term stability such as Kaneda anterior spinal instrumentation or various pedicular instrumentation etc, but these devices are so expensive and unavailable.

Our constructs with the use of bone cement incorporated with screw, early mobilization and sometimes need only little supports, available, much cheaper, less blood loss with short operative time and

can stabilize the spine with decompression by only anterior approach. While the construct may have some disadvantages such as the extrusion of bone cement and we had to support by brace insome regions.

Our constructs had been beneficial on the immediate anterior stabilization of the spine in various conditions. As they work well in the spinal metastasis, osteoporotic spine injury and pyogenic infection. We could get rid the cause and promote the stabilization immediately and plus bone graft for long term stabilization. Generally, the constructs with bone cement had the problem of extrusion during extension. The cement incorporated with screws in our construct had proved that it could withstand against extrusion by screw and washer by fixed in the slots and pay the role against extrusion when distraction or extension.

In the patients with severe osteoporotic bone, which will make some difficulty and problem to instrument. By using our constructs plus bone grafting, all cases improved properly, this implicated that this construct work very well and could withstand this circumstance.

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