

A neurosurgical hand rest

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After the microscope came into vogue, the surgeons enjoyed a huge optical advantage, but at the price of increasing the working distance. This often resulted in early fatigue of the shoulder, arm and hand muscles and also predisposed to tremors very soon. The stability of the surgeon's hand and the surgeon's fatigue cannot be measured, and the impressions of the surgeons using the system are therefore subjective.

Attempts at reducing this had been done, and each surgeon adapted in his own way. The "pinky finger" method which advocates usage of the little finger to stabilize the hand is a popular option. However this cannot be sustained for a long time.

There were attempts at making a hand rest for a neurosurgeon operating under the microscope. These proved to be rather "space- occupying" and were scrapped soon after their introduction. Further these armrests were fixed^{1,2} so that time and labour are required to move one's hand position or to change the armrest's direction. These armrests are not sufficient for

neurosurgery during which a microscope is used and agile and elaborate hand movements are required.

Given this inconvenience, we have made an attempt to make a "non space occupying" yet versatile hand rest which can be attached to any type of operating table.

The constantly adjustable hand rest provides steady support for precise manoeuvres and helps to reduce fatigue by allowing relaxation of arm and shoulder muscles.

The hand rest system can be attached to a rod which can be fixed to any surgical table using an X clamp. The base piece stands perpendicular to the rod and its height can be adjusted and fixed. At the distal end of the base piece is a ball and socket joint which allows movement in more than 180 degrees in all three axes. The ball and socket joint attaches to the hand rest piece. This can be adjusted according to the surgeons need and fixed after which it will not move.



Fig 1 'a' and 'b': the movement range of the ball and socket joint in the Neurosurgical hand rest.

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In a Neurosurgical scenario, a pliable suction tip, an optical fibre illumination system or a self retaining retractor system may also be attached to this hand rest making it a truly multi-tasking assistant for the neurosurgeon. Nevertheless, in 32 operations during a period of 4 months, we observed substantial differences in the performance of procedures with and without the use of our system. In operations using this system, the stability of the surgeon's hand was markedly improved and fatigue was reduced greatly. No disadvantage was observed with the use of this system; the results of this experience were thus satisfactory.

We are certainly open to suggestions and further improvement since we know this hand rest is far from perfect. However, an attempt like this is definitely going to be helpful in the future directions for ergonomics in the Neurosurgical theatre.

References

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Erratum

The Editorial Board of Kathmandu University Medical Journal (KUMJ) notifies all our readers and concerned authority that KUMJ has been wrongly publishing its online ISSN in the printed journals as 4812-2078 whereas as it should have been 1812-2078. The Editorial Board apologises all concerned for this error and any inconvenience caused by it. From issue no. 23 onwards the error has been duly corrected.

The Chief Editor, KUMJ