What's New in Microsurgery?

A newsletter for our society is a great idea and I thank our President Dr. Soucacos for the invitation to contribute on this topic.

The meaning of the word '**New**' is relative and could mean different things to different people. For example at the recently concluded WSRM meeting in Okinawa we saw a demonstration of microscopes, instruments and sutures for supra microsurgery, facilitating anastomosis of vessels of 0.5 mm and lesser. That would be the '**New thing**' for an established microsurgical centre, while a standard free latissimus dorsi flap to cover an open fracture of tibia could be a sensation in a peripheral clinic in a developing country. My guess is that 60% of the world is 'microsurgery dark'. In such places **reconstructive microsurgery itself will be new**. It is a fact that we have to face and a figure that we have to change. As a surgeon practicing microsurgery extensively in a developing country, I perhaps have the opportunity to look at and experience both situations.

What is new in Microsurgery? There are two aspects to consider: advances in microsurgical techniques per se and the influence of progress in other fields related to microsurgical practice. With respect to the former, supra microsurgery is certainly pushing the boundaries though it remains to be seen if it will become an advance which will be practiced through out the world. It will depend, not on the ease of mastering the technique of suturing such small vessels, but in finding clinical applications where that skill is mandatory. Significant differences must be seen in outcome, with a great reduction in donor site morbidity and only then will surgeons be willing to establish the required infrastructure in their practices and undertake the training to master the necessary skills. We will see in the next few years whether supra microsurgery makes the jump from trend to established advance.

The second technical issue is that in future there will be more widespread use of mechanical devices like couplers for anastomosis of vessels. Couplers are faster and the patency rates are comparable and even better than suturing. Robots for microsurgical work is also a feasibility. Will these reduce the impetus to master the hand suturing techniques? I think the answer is 'no'. If the mechanical devices fail, then one has to resort to regular suturing of the vessels. In such demanding situations even higher skill levels are needed. Hence I think that what ever advances may occur, still it is mandatory to develop the dexterity of suturing the vessels.

That raises the next issue of how do our younger trainees get the hand skills in microsurgery. Decades ago Harry Buncke said, 'The age of the self taught microsurgeon is over'. Buncke and Acland laid great emphasis on mastering the basic suturing skills in the lab before embarking on clinical cases. Now the number of places offering lab training is getting limited, because of the tough animal licensing procedures and cost of maintaining a good lab. Fortunately with travel becoming easier, trainees do not hesitate to travel to good training centers. WSRM can institute fellowships for trainees from areas where microsurgery is not established.

The second issue is that newer developments in allied fields will influence the way we practice microsurgery. I can think of two examples. One is allotransplantation. That certainly is a promising application for microsurgery. Technically many centers are capable of doing the surgical part, but as of now will be incapable of taking care of the immunosupression part and rehabilitation. If further research makes them simpler and very affordable then this '**new thing**', will become very popular and will open up tremendous possibilities. Even a common man in a developing country is well aware of allotransplantion thanks to the media, and hence popularizing it will not be a problem.

Second example to discuss is the introduction of Vacuum Assisted Closure (VAC) in wound management. VAC is certainly useful and can produce dramatic results in selected cases. There are papers recommending VAC, authored by surgeons who were proponents of microsurgical flaps in the last decade. It is interesting to read both papers together. Such papers trigger great enthusiasm about VAC. VAC concept perhaps is in the 'overuse' stage at the moment and gradually it will stabilize to its true potential. In our experience if we have felt that if an acute wound at the end of debridement would benefit from a microsurgical flap certainly in most instances that gut feeling always proves to be true and economical in the end.

Now we come to the way we practice microsurgery. Indications are expanded or curtailed not on the basis whether microsurgery option is the best in the particular clinical situation. Infrastructure, reimbursement levels and many such issues determine if microsurgical option is chosen. Two things can help towards popularizing microsurgery. One is the development of high skill levels. Then one is more confident in taking up the cases, surgical time is lesser and success rate is higher. This scenario increases the chances of microsurgery being chosen as the treatment option. It is good to develop that positive cycle. Occasional microsurgery reduces skill levels, takes more time to do