

My association with progress of italian experimental microsurgery



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A Scholar, Giuseppe Mazzoni, M.D., was a distinguished student of Professor Valdoni who was one of the first student of my microsurgical course held in Rome (1967). Mazzoni expressed desire to bring his loving family to where I was residing, La Jolla, California. He did take a deep breath while he was watching the sunset from his new La Jolla residence and said, "This is where my family will be raised and I'll die here".

He earned his reputation not only from his patients, but also from the scholars all off the world to discuss any subject may rise. He had been a good associate of mine, but had not much time to share the research on consecutive organ transplantation in rats on account of rigorous study to be qualified to obtain the status of California surgeon to set up his practice.

About 8 years ago, he has been exposed to group of Parkinson's disease, has been comatose and died this May 2003. Luckily his children grew up well and been well educated. His widow, Madam Stefania, receives full love from their children and friends. As my last Italian student vanishes from La Jolla, he is remembered as brilliant, well-organized, skillful experimental microsurgeon and friend of well-known scholars including late Professor Medawar, Professors Sir Calne, Starzl, Woodruff, Brent, Brendel and many more. Particulary, he is deeply mined by my family on great affection, association, opportunity and cooperation, collaboration of many aspects, including founding and organizing the 1st International Society for Experimental Microsurgery in 1992.

May God be with faithful friend, Giuseppe, eternally.

Abstract

The Author reports in this article, of historical and scientific meaning, the long collaboration with Italian researchers who, starting from the beloved and unforgettable Prof. G. Mazzoni (1967), allowed to maintain stable and lasting with time up to today a precious bridge of cultural and scientific exchanges aimed at the development of experimental and clinical Microsurgery in Italy and in the World.

Key words: Experimental microsurgery, clinical microsurgery, microsurgical research projects.

Riassunto

LA MIA COLLABORAZIONE CON I RICERCATORI ITALIANI PER LO SVILUPPO DELLA MICROCHIRURGIA SPERIMENTALE

L'Autore dedica questo articolo, di significato storico oltre che scientifico, alla lunga collaborazione con i ricercatori italiani che, a cominciare dal compianto e indimenticabile Prof. G. Mazzoni (1967), hanno consentito di mantenere stabile e duraturo negli anni sino ad oggi un ponte prezioso di scambi culturali e scientifici finalizzati allo sviluppo della Microchirurgia sperimentale e clinica in Italia e nel Mondo.

Parole chiave: Microchirurgia sperimentale, microchirurgia clinica, progetti di ricerca microchirurgica internazionale.

Introduction

Erecting a reputable building requires suppliers of building materials, as well as architectural designers along with competent builders of all phases and aspects to complete the aimed blueprint. Since I have found Italian colleagues who worked closely in many aspects of microsurgery in rodents, they were not superficial ones. Their thoughts were well laid out, performed artistically and elegantly to make microsurgery to last long, like how their ancestors have organized the cities, buildings and erection of artful stone figures existing in most of every cities, towns I have visited. During nearly 40 years, I was fortunate to associate myself with these scholars as my true friends, my thoughts can not bypass without

mentioning some of their names. This is simply a fragment of my visiting history of Italy where my friends are residing, at least most of them are.

My involvement with Italian colleagues

In 1976 Professor Cortesini was advised by Dr. Frank Dixon, the noted immunopathologist at Scripps Clinic and Reserch Foundation in La Jolla, California, that I could help establishing a transplantation laboratory especially to conduct rat kidney transplantation and allied experimental microsurgical procedures. While late Professor Stafanini organized Italian organ transplantation congress, I was invited to attend the congress as well as I had an opportunity to show few procedures of microsurgical techniques in ether anesthetized rats. I was carrying only one set of microsurgical instruments, Doctors, Arullani, Ancarani, Elti, Gargiulo, Prof. Ancona and I visited several instrument shops to equip for twenty young scholars. The first such workshop was more like an introduction of rat portacaval shunt and kidney transplantation techniques and those young Italian doctors quickly grasped the ideas to get to work. I recall Professor Mazzoni and Dr. Pettrossi publications and others. I was then appointed as the University of Rome Research associated and participated in transplant microsurgical research.

Professor Cortesini informed me of possibility of acquiring a country estate to open an organ transplantation research laboratory in 1968, but the third course in 1971 held at the same location of surgical laboratory of the University of Rome. While we were visiting Venice, we ran into Professor Peracchia's group and I was asked to address to his students at the Padova campus. At the medical museum, I was very much impressed by so many famous Italian anatomists' portraits: Prof. Morgagni, Prof. Falloppio, Prof. Santorini and many more. At the anatomical amphitheater those steep desks and chairs for students and the platform for professor and the cadaver were created very impressive images of yesteryears of struggling to learn the brand unfamiliar anatomical chapters by eager students. I had to resume my unforgettable days of anatomical classes in my memory and saluted to those who deceased long ago but left very valuable knowledge to world's health professions as pioneers. My compliment went to their innovative mind, artistic talent and preservation of such valuable history echoed by an artistic preservation of Italy.

One unforgettable moment was during my speech when I delivered the "Microsurgical Progress, Particularly in Organ Transplantations" at the amphitheater of the University of Milan Pharmacology School. At that time, there were many young left wing students who were trying to draw attention from foreign visitors by turning of the electrical power to the meeting room. I was in the middle of showing slides when the lights went out.

The doors and windows could not be opened from the inside and it was very dark. About 200 surgeons were panicking and shouting as if they were arguing. I opened with my usual remark and I asked the audience, "I would like to change my topic to Testicular Transplantation and Rejuvenation. I need a competent interpreter". Two volunteered. Professor Giuseppe Mazzoni was chosen and I delivered my speech without boring them, I hoped. The presentation lasted about 45 minutes when the lights finally came on. "Therefore, future microsurgical skills will help not only penile reimplantation, but also penile transplantation in which case the recipient suffered penile cancer and etc." Professor Montorsi informed me that they had already transplanted this in Italy. When I asked about the results, Professor Montorsi replied, "The patient said that the results were fantastic and was very pleased. But when I interviewed his wife the reply was different. She felt it was like committing adultery to be with her husband who had a very intimate part of him replaced by some other man's. Professor Lee, this episode is just a fiction. We have never performed penile transplant in this country". Professor Montorsi, said because Italy's main religion is Catholic, implications like those associated with penile transplantation will undermine its progress here. Although there is a potential need for such surgical procedures, those implications outweigh the need. Regardless of some ethical obstacles, microsurgical skills may remedy such losses.

For several years, my colleagues and I were heavily involved in changing out laboratory animals from dogs to rats in attempt to reduce experimental burden and negative public sentiment. The microsurgical technical data employing rodents have gradually accumulated from simple microvascular anastomosis to organ transplantation and these helped to unlock some of the transplantation immunology and auto-immune complexes. The following workshops held in various institutes in Italy were certainly unforgettable.

A formal and informal workshops held in Italy (Table I)

Early days of informal microsurgical courses near Rome

From early spring of 1971 until 1982, we were frequently invited to conduct informal courses for fellows of Professor Mazzoni at Valmontone and few from Colleferro. As the result, Professor Mazzoni and Dr. Di Martino published a small translated booklet of my microsurgery book.

Formal microsurgical courses held in Milan

With the full authorization by Professor Montorsi, Professor Fox organized very well planned formal micro-

Tab. I – FORMAL & INFORMAL MICROSURGICAL WORKSHOPS HELD IN ITALY*

<i>Year</i>	<i>Workshop</i>	<i>Organizer(s)</i>	<i>Remarks/Location</i>
1967	1 st Microsurgical Organ Transplant	Cortesini	Visiting Professor (Univ. of Rome)
1968	2 nd Microsurgical Organ Transplant	Cortesini	Visiting Professor
1971	3 rd Microsurgical Organ Transplant	Cortesini	Visiting Professor
1971-82	3 rd Microsurgical Organ Transplant	Mazzoni Di Martino	Visiting Professor (Valmontone/Colleferro)
1974	Formal Microsurgical Course	Montorsi Fox	Visiting Professor (Milan)
1976	Formal Microsurgical Course	Montorsi Fox	Visiting Professor (Napoli)
1984	Formal Microsurgical Course	Tesauro	Visiting Professor (Napoli)
1984	Formal Microsurgical Course/Workshop	Rodolico DiCataldo	Visiting Professor (Catania)
1986	Formal Microsurgical Course/Workshop	Rodolico DiCataldo	Visiting Professor (Catania)
1997	Formal Microsurgical Course	Ortensi	Visiting Professor (Rome)**

* Course conducted by Sun Lee (whole or partial)

** European Training Course on Basic Microsurgery

surgical, which were held at the Mario Negri Institute in 1974 and 1976, and over 25 participants attended. The one-week course at each occasion covered basic microsurgical procedures such as rat carotid, femoral vessel anastomosis, end-to-side portacaval shunt, and organ transplantation. At the end of the session, there was a ceremonial dinner conferring the diploma.

Formal microsurgical courses held in Napoli

In 1984, while we were invited by Professor Rodolico in Catania, we had a pleasure visiting Professor Tesauro who organized a giant microsurgical workshop. I can recall there were over fifty operating microscopes lined up and at least two students were sitting at each side. After about 45 minutes of lecture, I conducted the first day of instruction and left for Catania. Professor Tesauro and associates have been very energetic publishing microsurgical bulletin at their own expense.

Formal microsurgical courses held in Catania

In 1984 and 1986, we were invited to conduct formal microsurgical courses at the University of Catania. Professor Di Cataldo organized the course at each occasion under the direction of Professor Rodolico. Despite of rainy season and the immediately followed volcanic eruption, there were many applicants who expressed desire to attend the microsurgical courses. Students practiced intensively for six day each covering microvascular anastomosis, neural reconstruction, vasovasostomy, uterine anastomosis and allied organ transplanation using

urethane anesthetized rats. At the end of the course, they were conferred the diploma affixed with the official seal of University of Catania.

Most of the students were not only skillful, but also were highly motivated and performed well.

Formal European basic microsurgical course

In May of 1997, under the direction of Professor Di Matteo of the University (La Sapienza) of Rome, Professor Ortensi organized the first European microsurgical course. During six days of courses, there were many well-trained faculty members from Italy, France, and Belgium, presented many delicate microsurgical clinical cases. It appeared that there were certain duplicates in presentation and the students came form Italian schools and many foreign students may not have had enough time to practice on microvascular, micro-neural and vasal anastomosis. During their practice period, the practice rooms were divided. There were not enough operating microscopes for every student and it was pity that some had to wait for the turn. Despite of such obstacles, students gained the knowledge in both experimental and clinical microsurgery. When I interviewed the most of them enjoyed having such opportunity to step into very important delicate microsurgical field.

Mayor National and International microsurgical Congresses held in Italy. (Table II)

*1. Third International microsurgical society congress**

In 1974 the 3rd International Microsurgical Congress

Tab. II – MAJOR MICROSURGICAL CONGRESS HELD IN ITALY*

Year	Name of Congress	Chairperson	Name(s) of Organizer(s)
1974	3 rd Int'l Microsurgical Society**	Cortesini/Hashimoto	Mazzoni (Rome/Valmontone)
1980	The 1st Italian Microsurg. Club	Montorsi	Brunelli/Fox (Cortina)
1986	The 9th International Society	Brunelli	Brunelli
1992	The 1 st International Society for Experimental Microsurgery	Rodolico	Lee/Mazzoni (Rome)
1997	The 17 th Italian Microsurg. Society	Campisi	Campisi (Genova)

* Congresses attended by Sune Lee as a Keynote speaker

** At the Mexico Congress held in 1976, the International Microsurgical Society from International Microvascular and Experimental Microsurgery Society was adopted.

was held in Rome/Valmontone under the direction of Professor Cortesini and Mazzoni. The society was not officially incorporated while bearing the name of International Microvascular and Experimental Organ Transplantation Society under the co-chairmanship of Professor Cortesini and Hashimoto. At the University of Rome, Professor Calne demonstrated dog liver transplantation in an orthotopic fashion, the most of presentation of research papers were made at the Valmontone Hospital facility. There were many clinical reconstruction papers, particularly the digital and musculoskeletal re-transplantation. Transference was followed by experimental organ transplantation presentation.

Among many reputable experimental papers presented, the most outstanding one was from Dr. Pettirossi and late Dr. Kountz in that they transplanted LBN F1 skin, heart, small intestine, pancreas, and kidney into the parental recipients to compare relative organ survival behavior. There were number of papers dealing with immunological consequences following various organ allo-transplantation and endocrinological investigations manipulation kidney transplantation in hypertensive rats by Professor Fox and Bianchi of Milan, testicle transplant in the rat by Altwein and Lee. Butz and his group revised the so-called, "Cuff technique for union of the blood vessel using prosthetic tubing". This article explained how cuff technique helped rat kidney transplantation to shorten its ischemic period.

The ninth international microsurgical society (July 27-August 1, 1986)

Clinical and experimental microsurgeons came to Brescia, an ancient city rich in history and art. Professor Brunelli,

**The International Microsurgical Society was proposed by Professor Van Bekkum with Professors Guttman and late Hildemann proceeding the Transplantation Congress. The workshop was held at the Radiological Institute, Rijswijk, Netherland from September 4th to 5th, 1970, under the name of Workshop on Microvascular transplantation surgery. The 2nd congress was held in 1972 at San Diego, California.*

himself an artist, organized the finest microsurgical congress. At the congress, Professor Brunelli and his group initiated the central nerve regeneration in the rat. Later, Professor Brunelli directed his research toward studying primates. His research always appeared promising. At this time, the ratio of experimental microsurgeons to clinical microsurgeons appeared to be 1:4 as the research volume using rodents decreased while clinical achievement on reconstruction increased according to the Abstract booklet and the presentation at the congress.

The fifth Italian microsurgical congress (Italian Microsurgical Club)

From Milan, Professor Fox took us to the winding roads of the Italian Alps to the most magnificent Cortina. The triple layered window of the hotel kept the inside of building warm but the warm-blooded San Diegans like myself and my wife Jean were shivering outdoors. The air was very clean and the beauty of the Alps unmatched any other scene. There were many prominent university professors and their associates presenting their microsurgical research cases and results. It is impossible to enumerate this new art of microsurgical advancement and creativity. First of all, Professor Fox, the president of this society, initiated research on rat kidney transplantation on hypertensive rat project. He now directs his research to lymphaticovenous anastomosis protocol showing beautiful illustrations. There were many competent cases of digital hand, arm replantation and many organ transplant reports on rat/mouse heart, pancreas and other organs using different species. Many competent immunological discussion as well as microsurgical techniques were highlighted.

The first international society for experimental microsurgery congress

From 1990, I was looking for this congress site becau-

se the International Microsurgical Society (IMS) drifted away from the major international congress such as the Transplantation Congress, which was one of the largest. When we started the IMS congress, we planned to hold it either immediately proceeding or following the Transplantation Congress (TC) as Professor Von Bekkum advocated earlier. However, the IMS congress was held at too high an expense for young, new members who are not familiar with major congresses. In order for those who attending investigational microsurgical congresses to benefit from registering, transportation from and to the congresses must be provided which is a policy we have followed since 1992. After such policy was implemented, Professors Mazzoni and Rodolico and many international scholars such as Professor Thiede (Germany), Professors Nozawa and Kajimoto (Japan), Professor Zhong (Canada), Professor Hickman (South Africa) and many more have agreed to hold the first such meeting in Rome. The first congress (ISEM) was held at the ARS Medical auditorium, organized by Professor Mazzoni as chairman. A large Boston group headed by Professor Monaco, German and Japanese colleagues, and young Italian microsurgical investigators presented many reputable papers. Among them was Professor Campisi who lectured on lymphatic microsurgery particularly on lymphedema management concerning direct lymphography, lymphangiography on primary lymphedema. He further described the secondary lymphedema occurring following radical mastectomy, which is not an uncommon complication of modern breast surgery. The lymphatic microsurgery must be adequately initiated to alleviate discomfort on these patients.

This limited space does not allow me to discuss all the magnificent presentations made here by talented scientists and presenters. I always encouraged all presenters to send in their manuscripts so that the proceedings and information of their presentations shall be available. At the 3rd, 4th and 5th IMS congress, proceedings were issued by Professor D.S. Yoon of Korea (3rd, 4th) and Professor Lie (5th) respectively. The first ISEM proceeding was issued by Professor Rodolico and shipped by Professor Mazzoni to the ISEM headquarters (a temporary location was at Mercy Hospital In San Diego). We must respect scholars who presented their studies. Their work should be well documented and preserved. Someday the whole or part of their work will be looked upon as valuable reference. The 2nd, 3rd ISEM proceedings have also been documented as 2nd ISEM proceedings (published by Professor Kajimoto/Kitatani as Recent Advances in Experimental Microsurgery, while the 3rd congress proceeding is being printed by the Springer-Verlag Publishers. Credit goes to Professor Thiede, Professor Gassel and Professor Timmermann).

The 17th Italian microsurgical society (December, 1997)

This congress was organized by my dear colleague,

Professor Campisi and ran very effectively. It was my honor and pleasure to be in this seacoast city of Genova, Italy to share the familiar faces: Professors Rodolico, Teasuro, Brunelli, Gaspari, Campisi, Ortensi and many young colleagues. At this congress about 22% of 171 participants submitted congress abstracts containing some forms of investigational microsurgery limiting their use of animals in their experiments. As Japanese legislatures were strict about the brain death-rule on potential human organ donors, Italian researchers encountered regulations of animal usage on allied investigational work. There were many wonderful clinical reconstruction reports at the congress including four abstracts from Chinese colleagues that drew much attention. They included reconstruction on cranio-facial deformity, penile reconstruction, scalp re-plantation, and toe-to-digital reconstruction. Again, the research from Professor Brunelli was commendable on central nerve regeneration and Ulna nerve relocation studies.

The following joke from the humorous late Professor Ceppellini's on Italians. During the World War, "One English soldier confessed immediately to the enemy while the Italian soldier did not. Why? Do you think the Italian soldier was royal and brave? No, Not at all. His hands were tied behind him". Italians like to talk with their hands and fingers. When they speak, they speak with a lot of gestures and emotions. When they perform microsurgical procedures, they certainly perform beautifully. I will be honored if I contributed in some way to their microsurgical talents. I am certain that this journal will contain many important scripts for scholars of future generations year after year, not only for Italians, but also worldwide.

The 5th international society of experimental microsurgery congress

The 5th International Society of the Experimental Microsurgery Congress was held under the local chairman, Professor Di Cataldo with the full authorization of retiring Professor Rodolico in Catania, Sicily, Italy during September 3 to 6, 2000. Since the congress was held right after the major Transplantation Congress held in Rome, many young colleagues have participated. From Italy, among many participants, Professor Brunelli reported current status on the central nerve regeneration. Professor Campisi reported on current status on lymphatic-venous-lymphatic continuity in reconstructive microsurgery. There were short and long-term follow-ups on rodent's organ transplantation in the problem of chimera, long-term immunosuppression, and consecutive organ transplantation and many more.

A particular unforgettable memory was that a special car was sent the hotel took us to a slope of Mt. Etna, an outdoor restaurant, joined the group of waiting colleagues, dined and drank, sang the native songs from each

countries. From Hong of Severance Hospital, Dr. Chae (now residing in Belgium) and Jean were there and we sang. What a wonderful and beautiful memory that was. Professor DiCataldo was voted as the next President of the ISEM. My sincere congratulations to him.

The 18th international congress of lymphology (September, 2001)

The 18th ICL was held in Genoa and I was invited by Professor Campisi, the local chairman of the congress and became the president of the society. As an honorary guest of the society and chairman of the one session, I attended during presentation of topics. The Genoa group (Campisi and associates) revealed the most of impressive work. Genoa group's visual demonstration though color video on lymphatic-venous-lymphatic continuity involving microvascular anastomosis was excellent. There were several good research papers and the program was filled with many clinical aspects of immediate and chronic management of lymphedema whether caused by parasitic or surgically created lymphedema. I was very proud to be associating with Professor Campisi who is considered a naturally and universally trained microsurgeon. It was occasion to running into my old and young friends like Professor Olszewsky, Ortensi, Di Cataldo and many more. The congress was well organi-

zed and ran very smoothly. I heard very good comments from those who attended such as Byung B. Lee of Korea, Indian delegates, Egyptian delegates as well as U.S. delegates. My sincere congratulations.

Conclusion

Since 1967, I began to associate with Italian colleagues to explore and gain perfection of allied vital organ transplants in the rat, thus we reduced the use of domestic animals for organ transplant research in Italy as well. It has been found experience to associate myself with leading Italian colleagues, particularly, with Professors Fox, Campisi and Di Cataldo in many aspects. The short and long-term trainees from Italy to my laboratory are quite a few, including Professors Di Cataldo, Pempinello and Dr. Fazi from Florence.

Among all close associates from Italy, Professor Giuseppe Mazzoni's death is highly saddened. We know human flesh vanishes soon or later. We ought to leave something for our younger generation to appreciate the art of experimental microsurgery and I did my part, with Italian flavour.

This briefing is dedicated to my dear friend, Giuseppe Mazzoni, who was the first and last Italian Experimental Microsurgeon associated with me.

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