PROCEEDINGS OF THE 50th ANNUAL SCIENTIFIC MEETING OF
THE JAPANESE CIRCULATION SOCIETY

March 1986, KYOTO

President: Chuichi Kawai, Kyoto University

FREE COMMUNICATIONS

(II)

March 28, 1986

Chairman

316-322 F. Kajiya, *Kurashiki*

-316-
APPLICATION OF FIBERSCOPE TO CORONARY
ARTERY AND AORTIC VALVE DISEASE

Yamaguchi Akimitsu, Irie Toshiaki, Otaki
Masaki, Tomizawa Yasuko, Minoji Tadahiko,
Tamura Hidetoshi, Atobe Masaaki, Kitamura
Nobuo

Osaka National Hospital

The flexible fiberscope has been used in many medical fields. It is a sophisticated instrument for clinical diagnosis and therapy. From January 1984 the fiberscope has been used in clinical cases of our department.

In cases of A-C bypass grafting, a 1.8 mm fiberscope was inserted into the coronary arteries from the arteriotomy hole. The coronary artery under inspection was flushed by continuous coronary perfusion. By applying our method, the stenotic lesion of the coronary artery can be examined under direct vision, which is now performed blindly. And it seems possible to evaluate operative transluminal coronary angioplasty and observe the state of graft anastomosis. In other cases, which had aortic valvular changes complicated by other valvular disease, a 3.5 mm fiberscope was inserted into the aorta from the aortic root for injection of cardioplegic solution. The fiberscope has another lumen which can be used for aspiration. The aorta was flushed with cardioplegic solution injected through this lumen. This made it possible to evaluate the aortic valve directly and to establish the operative indication. By studying more cases in the future it's expected to be possible to enlarge the fiberscope to include comparison of contrast radiographic findings and morphologic findings under direct vision scoring the organic changes of aortic valve by fiberscope, evaluation of the subvalvular apparatus at the time of open mitral commissurotomy and so on. And we expect the possibilities of LASER operative transluminal coronary angioplasty and further more, LASER percutaneous transluminal coronary recanalization by flexible fiberscope. It is believed that the use of the flexible fiberscope in cardiac surgery will surely increase in the future.

-317-
FIBEROPTIC OBSERVATION OF PULMONARY
THROMBOSIS

Akihito Kato, Yasumi Uchida, Kishin Tomaru,
Masatoshi Masuo, Hiroyuki Sonoki, Tsuneaki
Sugimoto

2nd Department of Internal Medicine,
Faculty of Medicine, University of Tokyo

To examine the process of pulmonary thrombosis, we observed the luminal changes before and after intimal damage by a 5F vascular fiberscope in 13 dogs. Before intimal damage, the luminal diameter of the artery changed synchronously to cardiac and respiratory cycles. Exfoliation and bellows-like changes of the artery were produced by balloon inflation. Blood perfusion for 30min resulted in formation of thin laminal thrombi at the exfoliated segments. The thrombi grew in size by increasing perfusion time and obstructed the cavity of the pulmonary artery within 60min in the majority of preparations. The result indicates that fiberoptic observation is a useful method for dynamic and serial analysis of the pulmonary thrombosis in vivo.

-318-
EFFECTS OF LASER IRRADIATION ON HUMAN
POSTMORTEM AORTA WITH ATHEROMATOUS
LESIONS

Hirofumi Kambara, Ryuji Nohara,
Hisayoshi Fujiwara, Chuichi Kawai

Third Division, Department of Internal
Medicine, Faculty of Medicine, Kyoto University

Laser irradiation has been shown to vaporize atherosclerotic plaques from postmortem human vessels, but there is no report which analyzed a relationship between laser energy and degree of tissue evaporation.

Postmortem specimen under investigation were human aorta of newborn babies and of patients with various ages up to 78 years. Three types of laser were used with power between 1.0 and 4.8 watts in argon, between 19 and 83 watts in Nd-YAG and between 1 and 70 watts in CO₂. Irradiation was performed by a continuous method for a period of 0.2 to 30 seconds and was directed perpendicularly to the dry surface of the endothelium of aorta with various degree of atherosclerosis. Depth of the crater produced by laser irradiation was measured and examined microscopically. Depth of the crater was correlated well with total laser energy applied ($Y=0.207+7.76E-4X$, $r=0.80$, $n=41$ in argon; $Y=-0.460+0.0994X$, $r=$