The observation of the mucosa of deeper colon has been made successfully in 1957 with Sigmoidocamera which was developed by Prof. Matsunaga. The observation with Sigmoidocamera, as the name shows, was limited only so far as to the upper sigmoid colon at first, but by repeating redesignings, the observation of the descending colon, the transverse colon, and rarely of the cecum has become possible. However, this scope was not satisfactory because it required a high technique on account of a blind insertion.

In order to overcome this limitation and to make an ideal colonoscope, an application of glass fiber was made. In 1968, an almost satisfactory colonoscope, which we named "Colonofiberscope", was made as a trial, and in 1969 it was successfully redesigned to make the insertion and observation possible so far as into the end of the ileum.

According to a recent report on the questionnaires to all the medical schools and main hospitals in Japan, approximately 9,500 cases were examined with colonofiberscopes in 1974. The average success rate in the observation of the aimed region was 86% and of the ileo-cecal region was 31%. The complication included 38 cases of perforation or massive bleeding episodes, which was 0.15% of total examinations.

The insertion of a colonofiberscope can be done easily by using "a" type insertion method devised by the author. The key points of maneuver of the colonofiberscope are as follows. The first is to make the patient relaxed and free of anxiety for the examination. The second is to insufflate a minimum, yet sufficient air into the colon, and the third is to pull back the scope a few centimeters when the tip of the scope strikes the colon tract lining.

So far we have examined 1,307 cases with colonofiberscopes and diagnosed 312 cases of neoplastic diseases of the colon. The lesions include 100 cases of solitary polyp, 57 cases of multiple polyps, 14 cases of familial polyposis, 7 cases of Peutz-Jeghers' Syndrome, 133 cases of advanced cancer and 15 cases of early cancer.

The accuracy of diagnosis of neoplastic lesions of the colon has been remarkably improved since colonofiberscopes were put into practice. The polyps and polyposis were found in 16% of cases of the total examinations. With conventional proctosigmoidoscopes, only about 40% of polypoid lesions could be diagnosed. Atypical histology was seen mainly in cases of large polyps with erosion, unevenness and hemorrhage. The rate of malignant changes was 6% in solitary polyp, 15% in multiple polyps and 50% in diffuse polyposis (80% in persons over 20-years-old.) It is often difficult to differentiate malignant polyps from benign one by endoscopic observation. Therefore, biopsy or endoscopic polypectomy is required.

Endoscopic polypectomy has two purposes: one is the total biopsy to diagnose histologically minute forcal cancer and the other is the medical treatment to remove lesions such as juvenile polyp which often causes massive bleeding. Endoscopic poly-
pectomy of the deeper colon has been tried in many ways, since a colonofiberscope was first put into practice. For the first time in 1969, we tried polypectomy using an ordinary biopsy forceps; however, it was unsatisfactory. In the following year, we began to study polypectomy with the use of high frequency current. This method is now more easily done with newer instruments. Bleeding does not usually follow and the resected polyps can be retrieved easily by suction. Injured mucosa usually heals in several weeks and in another two months even a trace of a scar is almost unnoticed.

All our patients were hospitalized for polypectomy and so far we have polypectomized 104 polyps without any accidents. Histological study of the resected polyps revealed in 8 cases minute forcal cancer that had not been found out by previous biopsy, and in 7 cases juvenile polyp that had massive bleeding.

Fifteen lesions of early colonic cancer were diagnosed and all were polypoid. Diagnosis of advanced cancer can be made easily by colonofiberscopes, but in the terminal stage of cancer it is often hard to insert the scope because of cancerous peritonitis.

Diagnosis of diffuse polyposis of the colon is easy; however, special attention must be paid in only atypical cases, otherwise they may be treated as colon cancer. Once a diagnosis of diffuse polyposis is established, it is necessary to examine the family as well. The youngest one whom we diagnosed was a 7-year-old boy. The rate of malignant change in diffuse polyposis was very high in our experiences, and so total colectomy would be most desirable for prophylactic measure as well as radical cure.

The experimentally polypoid lesions of the colon, which were made in rats by giving enema of NG, were studied. The mucosal changes of the colon were followed up by observation with special fiberscopes. But it was difficult to point out endoscopically the time of malignant change of the polypoid lesions.

Many endoscopic pictures of interesting cases were shown at the congress.