

LASER SURGEON

■ Israeli plastic surgeon Dr. Isaac Kaplan, a pioneer in the development and use of a continuous wave carbon dioxide laser knife, presented some of the applications of this modality at a recent international meeting in Munich and at a spring conference sponsored by the New York Academy of Sciences.

In the past three years Dr. Kaplan and his associates at the University of Tel Aviv affiliated Beilinson Hospital performed some 300 operations, including mastectomies, endoscopic procedures, excisions of benign and malignant skin lesions, with a CO₂ surgical laser.

Because the laser reduces blood loss by sealing minor vessels as it cuts, it is recommended by Dr. Kaplan and his colleagues for surgery on highly vascular tumors and body areas, such as the scalp, back, tongue, liver, and soles of the feet. The laser's infrared light, which has a wavelength of 10.6 μ , is totally absorbed by water and thus the beam's focal point vaporizes tissue as it produces a fine hemostatic incision and leaves adjacent areas practically unaffected. The high energy light rays sterilize the operative field and apparently arrest the spread of infection by sealing lymphatic and blood vessels.

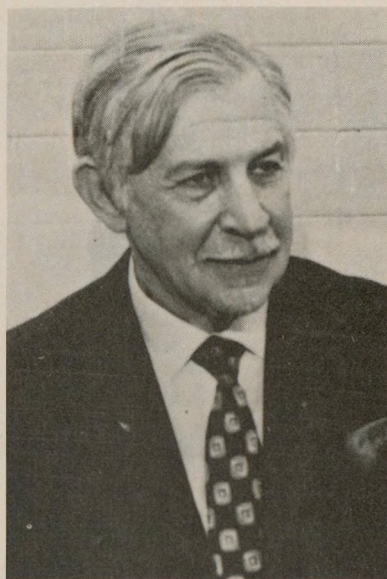
The apparatus used by the surgeons in Israel and several European and American hospitals* consists of a 50 watt CO₂ laser mounted in a horizontal beam, a control console, cooling system, and balanced articulated arm through which the collimated infrared rays are directed by mirrors to a sterilizable handpiece. The laser beam is focused by a lens in the handpiece to which is attached an interchangeable endpiece that serves as a guide and retractor. The compact, completely enclosed unit contains built-in safety devices so that only a few precautions are required. Members of the operating staff wear spectacles, work with non-reflective instruments whenever possible, use non-inflammable anesthetics, and apply wet swabs around the operative site when using special endpieces.

* The Sharplan 791 developed by Israeli physicist Uzi Sharon is now produced by Laser Industries of Tel Aviv.

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PROFILE

Dr. Kaplan reports that the reduced bleeding in laser surgery enables the operator to distinguish pathological from normal tissue more readily, eliminates the need for techniques of inducing hypotension or hypothermia and for transfusions with the possible hazard of hepatitis. Cervical erosions treated



Dr. Isaac Kaplan of Israel.

by this modality healed rapidly without infection, discharge, or bleeding; tonsillectomies were bloodless and almost painless, and a number of investigators have noted that postoperative pain following various laser procedures was considerably less than after conventional surgery.

Surgeons visiting the Beilinson Hospital have quickly learned to wield the laser scalpel. Dr. Kaplan believes the skill can be acquired in less than 15 minutes and says: "If you can write with a pen, you can write with a pencil." Although it is still too soon to determine the long-term results of this new type of penmanship, surgeons will have an opportunity to exchange their observations and methods at the First International Conference on Laser Surgery to be held in Israel in November.

Background. Isaac Kaplan, who was born April 10, 1919, in Kroonstad, a small town in the Orange Free State, served as an intelligence officer in the South African division of the 8th Army during World War II. After the armistice, he entered the University of Witwatersrand Medical School in Johannesburg and two years after he received his degree in 1950 he settled in Israel.

Following a residency in general surgery at the Hadassah Hospital in Jerusalem, Dr. Kaplan spent a year in England training in plastic surgery under the great Sir Harold Gillies and in 1958 established a plastic surgery department at the large, modern Beilinson Hospital. During the Yom Kippur War, the department took over an entire floor at the hospital to treat burned and injured soldiers and civilians. In the event of hostilities the surgeons are prepared to work in underground operating rooms.

In 1968 and 1969 while working with Dr. Arthur Barsky at the Children's Medical Relief International Plastic Surgery Unit in Saigon, Dr. Kaplan developed several new operative procedures, including a rapid method for constructing a functional penis. He also saw more than 400 cases of untreated cleft lip and palate and undertook simultaneous repair of both defects. More recently Dr. Kaplan used this combined method in 13 babies aged three to four months at the Beilinson Hospital and found that these infants vocalized earlier and had fewer ear infections than a similar group of youngsters whose palates were closed between the tenth and twelfth months.

The author of a book, *The Scope of Plastic Surgery*, and some 80 scientific papers, Dr. Kaplan spends most of his time operating at the hospital and teaching and devotes only eight hours a week to private practice. His office manager-nurse-travel companion and wife Masha Weingarten Kaplan is a sixth generation Sabra and the mother of their 17-year-old daughter who plans to be a veterinary surgeon.