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The Use of Polaroid Film in Lymphography

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Lymphology 1 (1969), 25-27

The use of Polaroid radiography in various areas of radiology is well known and has been described in the recent literature with special reference to urological¹ and neurosurgical² procedures. The application of the Polaroid technique to lymphangiography has been justified at the Hospital of the University of Pennsylvania as a means to determine the position of the catheter needle in the lymphatic channel.

Materials and methods

Since January, 1968, Polaroid radiographs have been routinely obtained at the Hospital of the University of Pennsylvania at the beginning of the lymphographic procedure to ascertain the position of the catheter needle. The technique used in per-

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formance of the lymphangiogram is that described initially by *Kinmonth*³, is well established and will not be described.

The polaroid film cassette holder is carefully placed under the feet of the patient following cannulization and an exposure is made after 0.2 ml of opaque is injected. A base line for adequate exposure is using a beam of 55 kilovolts, 100 milliamperes, and $1/20-1/15$ second for an ankle measuring 6.5 cm. The Polaroid film is then removed and developed in a special Polaroid processor* and within 45 seconds the film is viewed to determine the needle position.



Fig. 1 An anterior-posterior view of the distal tibia and ankle shows the path of the lymphatic channel indicated by the arrows and filled with Ethiodol. A continuous thread of opaque with characteristic beading is noted.

Discussion

In the performance of lymphangiography, it is frequently important to have some means available to assure with certainty that the catheter needle is in the lymphatic channel. The dangers from the intravenous injection of ethiodol have been well documented⁴. Although cannulization of the dorsal lymphatics of the foot is usually a simple and uncomplicated procedure, there are frequent cases which pose great problems.

In the cases of lymphedema due to hypoplasia of lymphatic channels, definite identification of channels can be difficult. In other cases, when edema is long standing, there may be diffuse staining of the subcutaneous tissues and structures with the patent blue violet dye, making proper differentiation between vascular and lymphatic channels difficult. Often, in the process of identifying and preparing the lymphatic vessel for cannulization, many anastomosing channels will be damaged and broken. When injection of the opaque oil begins, oozing of the oil from the damaged vessels will be seen and it becomes necessary to determine if enough oil is being transported cephalad in sufficient quantity to opacify the retroperitoneal nodes.

We have found that the Polaroid film has been of value in assisting us in making the above determinations rapidly. The use of standard Bucky radiographs or fluoroscopy is difficult because with proper positioning of the patient on the radiographic table, the feet are usually distal to the Bucky tray and the fluoroscopy device. Placing a Polaroid cassette holder under the feet and making an exposure is a simple matter. The

* The Polaroid film used is type TLX, obtained through district office of Picker Corporation Medical X-Ray Division, in the United States and Canada. In other countries, it can only be obtained through Picker Corporation International Division, White Plains, New York. The Polaroid film requires a special processor (Model 3453C) and cassette (Model 3473) which are also only obtained through Picker.

newest Polaroid film, TLX, has the advantages of wide radiographic technique latitude because of its ability to be viewed by reflected and transmitted light. Within 45 seconds, the Polaroid radiograph will show clearly by the characteristic oil pattern whether the catheter is situated within a lymphatic channel, or vein, or is leaking into the subcutaneous tissues.

This procedure reduces significantly the danger of intravascular injection since with a minimum of 0.2 ml of oil, proper positioning of the catheter can be determined. In addition, it has been shown by other investigators⁵ that the roentgen exposure for a Polaroid radiograph is less than for a routine radiograph.

Conclusion

Polaroid radiography offers a rapid and convenient method to determine the exact position of the lymphographic catheter needle when its location is in doubt. This simple technique only slightly increases the total cost of the procedure but its value in minimizing intravascular injection of an oil contrast medium offsets this disadvantage. In addition, the total radiographic exposure to the patient is considerably less than it would be if fluoroscopy or standard radiographic procedures were used.

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Comment: How Shall we Look at Hodgkin's Disease?

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Lymphology 1 (1969), 27-29

The paper by Drs. *Lennert* and *Mestdagh*, *Virchows Arch.*, Vol. 344; 1, 1968 (see abstract p. 33) goes to great length in adding a minute histologic differentiation of Hodgkins disease to an already crowded field of literature. The European terminology is different than that used in the United States and the article is somewhat confusing. The following discussion may shed some light on the subject.

Prior to the second World War *Jackson* and *Parker* subdivided the disease into three histologic types; namely paraganuloma, granuloma and sarcoma. In the past decade Hodgkins disease has been clinically subdivided into anatomic stages, depending upon the extent of the disease at any point in time (1). Thus, stage I applies where the disease is localized to one anatomic region; in stage II the disease is in more than one