

## Lymphography Without the Aid of Vital Dyes

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In most hospitals where lymphography is performed, the technique described by *Kinmonth* et al. (1,2), has formed the basis of the examination technique. The localisation of the lymphatics is made with the aid of a dye injected into the first interdigital space of the foot.

A considerable incidence of allergic reactions to the dyes has been reported (up to 2,5 per cent) (3). As experienced operators have reported (4) that the lymphatics are easy to localize also without the previous injection of dye, we found it worthwhile to compare the results of examinations carried out with and without the application of dye.

### *Material and methods*

From September 1971 to March 1972 all lymphographies done in the department were performed without the aid of dye. The total number of patients was 101 (group A). From April to November 1972 all lymphographies were done with the previous injection of 0,5 ml Patent Blue Violet intradermally and subcutaneously into the first interdigital space of the foot. The number of patients in this group (group B) was 104. The age and sex distribution was the same in both groups.

The lymphographies in group A were done by 7 different doctors. Six of those had no previous training in performing the examination. In group B there were 8 different doctors and seven had had no previous training. The only doctor common for both groups and with some previous experience was the author who is responsible for 15 examinations in each group. None of the doctors was extremely successful or unsuccessful with his operations.

In both groups the operation time was recorded and in group B time was recorded from the injection of the dye to the beginning of the operation. The operation technique was essentially the same in both groups. In group A a longitudinal 2 cm incision was made more or less constantly just lateral to the most proximal part of the first metatarsal bone. In group B a longitudinal 2 cm incision was made over the selected coloured lymph trunk. In both groups the lymph trunk was then located, cleaned thoroughly, and a silk suture was placed proximally underneath it and tightened slightly. The lymph trunk was then milked proximally, cannulated and the silk suture tied around the needle. In all instances a special lymphography set was used. The contrast medium used was the same in both groups, Lipiodol Ultra-Fluide.

### *Results*

The results can be seen in table 1. The operation time was recorded separately for each side from the incision to the beginning of the contrast injection. The so called waiting time is the recorded time from the injection of the dye to the beginning of the operation. The difference in number of successful operations in the two groups is of no statistical

Table 1: The success rate and operation time in the two groups. Group A: no dyes used. Group B: with the aid of dyes.

	Group A	Group B
Nr. of patients	101	104
Successful examinations	86	90
Successful examinations %	90.6%	91.3%
Bilateral unsuccessful examinations	4	4
Unilateral unsuccessful examinations	11	10
Mean operation time	36.5 min	36.9 min
Nr. of operators	7	8
Mean waiting time after injection of dye		30.7 min
Allergic reactions		1.9 %

significance. In group A the standard error is  $0,906 \pm 0,020$  and in group B the standard error is  $0,913 \pm 0,019$ .

We did not find it difficult to locate the lymph trunks without using the dye. Their characteristic glistening pearl-string like appearance, their thin walls, their elasticity and ability to become thicker when milked against a stasis made them easy to recognize and differentiate from the small veins. When Patent Blue is used it sometimes occurs that the operation field becomes blueish. Under these circumstances it may be difficult to recognize the lymphatics from the small veins. The blue colour may make it almost impossible to see blood in the small veins, which does not happen when no dye has been used. With appropriate care, accidental intravenous injection of lipiodol should not occur.

### Discussion

The localisation of a lymphatic without the aid of dyes is surprisingly easy. Any trained operator will find the differentiation from the small veins easy, a novice should have the aid of a more experienced colleague when dyes are not used.

The failure rate may seem too high in both groups. Some investigators (5) report 5% failure rate and others 8 unsuccessful studies out of 141 (5,6%) (6). The operation time too may be longer than that of experienced operators. Both the high failure rate and the long operation time is probably due to the fact that in group A there were 6 and in group B, 7 new beginners, who got their first training in lymphography during the examination period. The time from the administration of the dye to the beginning of the operation varies in different reports, from 5 minutes (6) to an hour or more (5), perhaps depending on the dye used.

According to previous reports the incidence of allergic reactions to Patent Blue Violet varies considerably, from 1 : 600 (7) to 2,5 per cent (3). In our patients the two instances of allergic reaction occurred almost immediately after the injection of the dye. In one

of the patients the reaction was mild, in the second instance the reaction was more severe, with urticaria, fall in blood pressure and some respiratory distress. The examination had to be postponed and was later carried out successfully without the use of dye.

### Summary

Studies were made in 205 consecutive lymphographies, 101 without and 104 with the aid of dyes. The failure rate and operation time were the same in both groups. Two patients had allergic reaction to the dye.

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## The Renogram in Lymphatic Dysplasia\*

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### Summary

1. Forty-two patients with lymphatic dysplasia were examined by hippuran iodine 131 renograms. The patients all had clinical and lymphangiographic proof of lymphatic dysplasia. None of the patients were hypertensive.
2. Of the 84 kidneys studied, 17 handled the hippuran in normal fashion with only 7 patients showing bilaterally normal renograms.
3. Abnormal tracings were categorized as mild in 44 kidneys, moderate in 16 kidneys, and severe in 7 kidneys, many of which could have been confused with nephrosclerosis or renal artery stenosis.

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