Further unsolved problems in intestinal anti-
sepsis are briefly discussed and a scheme for
 mechanical preparation of the bowel is suggested.

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INTERMITTENT CLAUDICATION IN A CASE
OF POLYCYTHEMIA VERA TREATED BY
SYMPATHETIC NERVE BLOCK

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Intermittent claudication is recognized as one of
the manifestations of vascular occlusion associ-
ated with Polycythemia Vera. These various
forms of occlusion have been discussed by several
writers including Ray and Forbes (1948), Horton
and Brown (1929) and Norman and Allen (1937).

Brown and Giffin (1930) in a review of 100
cases of Polycythemia Vera found six cases of
claudication with demonstrable occlusion. As a
result of treatment with phenylhydrazine and
phlebotomy, the symptoms disappeared in three of
these cases. They suggest that the operative
factors are: firstly an organic narrowing of the
small vessels; secondly anoxaemia caused by a
reduction of the circulation rate.

Oppenheimer (1929) recognizes two types of
case in which circulatory disturbances are found
in the legs: those in which there is a functional
or vasomotor disturbance, the vessels being patent
and oscillometric readings normal: secondly those
with actual occlusion of the vessels in which
oscillometric readings are diminished or absent.

A case recently seen by us appears to show that
the vasoospastic and obliterative elements can co-
exist in this type of case: that the one superadded
on to the other may be responsible for the dis-
ability: and that treatment of the former by nerve
blocks can banish the claudication.

In March 1951 a man of 66, a gardener, was re-
ferred to the anaesthetic department for assess-
ment of his suitability for nerve block treatment.
Nine months previously, during a successful course of
treatment for Polycythemia Vera, he had ex-
perienced a very sudden and sharp pain in his left
calf. Whilst the rest of his symptoms had abated
with the treatment, he was still handicapped by the
severe cramp-like pain in this calf which came on
after he had walked three to four hundred yards,
compelling him to rest until it passed off.

On examination, arterial pulsations could be
felt in the inguinal region on either side. On the
right, the popliteal, posterior tibial and dorsalis
pedis arteries were palpatble: on the left they could
not be felt. The left foot was white and colder than
the right one. Oscillometric readings taken
at rest showed a normal deviation of the needle
over the usual range of pressures for calf and thigh
on the right side. As expected those of the left
calf were very poor: in addition, those for the left
thigh were equally poor thus presenting an appar-
ently gloomy prognosis.

In spite of this, nerve block treatment was
undertaken, six blocks of the lumber extradural
space being done in seven days, with an interval
of one day in the middle: 10 ml of xylocaine 1
per cent. was used in each instance.

The oscillometric readings during this period
were of great interest. On the right they showed
the normal increase following a block. On the
left, as will be seen, the calf readings showed no
improvement during the whole period: but those of the left thigh, initially as poor as those of the calf, showed a dramatic response, the swing of the needle being greatly increased immediately following the first block. The posterior tibial pulse returned to the left foot after the first block and a weak but definite dorsalis pedis pulse could also be felt. These changes are clearly demonstrated in the diagrams which show the oscillometric readings before treatment: in the first few hours after the initial block: and in the succeeding days. The readings shown were taken at 140 mm. of mercury.

During the course of treatment the patient was kept in bed. On the day after the final block he was sent out to see if there was any increase in his claudicating distance. He reported that however far he walked he could feel no pain in the calf. Since then he has carried on his normal work without any further handicap.

On follow up, 18 months later, the patient says there has been no return of the cramp-like pain and claims to have walked seven miles in a day whilst on holiday. He does admit however that, recently, if he hurries unduly he is conscious of a feeling of tightness in the left calf: but he is emphatic in his statement that this is not comparable with the original pain.

Discussion
The salient features of the case are: firstly the sudden onset of the claudication which came, not insidiously and slowly, but as a sharp, violent pain. Secondly, the poor control oscillometric readings of the affected thigh and calf and their totally different response to nerve blocking: and finally the disappearance of the claudication.

It may be argued that the condition might have been cured solely by rest in bed. This is possible but unlikely in view of the oscillometric changes. It would also have been interesting to see if the claudication was still present after the first block only. We were rather loth to put this to the test because we felt that if any element of vasoospasm
was involved, then the position might be analogous with some cases of thrombophlebitis in which we had seen a tendency of the broken 'vicious circle' to re-establish itself after a single block of the sympathetic (Steel 1951).

In retrospect it seems reasonable to assume that the sudden thrombosis of the calf vessels brought in its train a concomitant spasm of the femoral artery thus shutting off the collateral supply to the calf muscles, and producing claudication. Blocking of the sympathetic could do nothing to reopen the thrombosed vessel but successfully relaxed its proximal spastic section thereby releasing the collateral supply to the calf and abolishing the claudication.

The literature on this subject shows that opinion is sharply divided on the validity of such a hypothesis and on the possible application of nerve block treatment.

Pickering (1951) states that vasospasm is a rare entity and is too readily invoked as a diagnosis. Homans (1943) speaks of arterial spasm caused by embolus as involving the arterial tree distal to the obstruction. Ochsner (1951) however goes much further and says that acute arterial occlusion brings in its train reflex spasm in uninvolved vessels thus affecting the collateral supply. Leary and Allen (1941) suggests that the residue of an acute thrombophlebitis might cause a 'reverse sensitivity' of the artery so that on exercise, it contracts instead of dilating. Pearl (1937) specifically speaks of the value of nerve block therapy in cases of claudication due to arteriospasm. Cohen (1944) states that neither deep anaesthesia nor spinal anaesthesia will relax major vessel spasm: but Homans (1933) concedes that a moderate degree of spasm of a great vessel associated with peripheral vasospasm will probably be relaxed by nerve blocking. More recently some cases of arterial spasm associated with intravenous infusion (Sutton, 1952: Vaughan, 1952) and with venepuncture (Redman, 1952) have been reported.

The liability of a great vessel to go into spasm in response to injury in its neighbourhood is well established. Is it then not possible that, sudden occlusion of such a vessel takes place, the proximal part may react to this disaster within its lumen in a similar manner? But even if this is so, then it still seems extraordinary that this state of balanced imbalance can be almost indefinitely maintained and then be suddenly, and apparently permanently, reversed by but a temporary blocking of the sympathetic pathways.

Summary

Treatment by nerve blocking of a case of intermittent claudication complicating Polycythemia Vera has been described, together with the oscillometric changes brought about by this treatment. The possible course of events has been suggested.

I am grateful to Dr. Harold Davis for having referred the case to me and for permission to publish it.

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