

The disadvantages are two: 1st. In all of the syringes the needles are of an unnecessarily large calibre. 2nd. Care must be used in selecting a syringe, as in many the fittings are not accurately adjusted.

The stiffness or inflexibility of the syringe I regard as an advantage rather than otherwise, for one hand suffices to control the instrument while the other can assist in steadying the patient.

The disadvantages of the ordinary plunger syringe are very apparent.

1st. Small quantities of serum may lodge about the washer and decompose so that careful sterilization, even boiling, is necessary before each injection.

2nd. If the washer be of asbestos this may shred and a small fibre block the needle.

3rd. They are more or less unwieldy, being from 8 to 14 inches long when the plunger is drawn out, and unless there be a short rubber tube between the needle and the syringe, this length interferes greatly with the insertion of the needle, the patient moving some part of the body and thereby striking the end of the syringe.

The site of injection is of course open to choice. I have used the buttock, the interscapular region, and the infraclavicular regions. The buttock I have discarded as being more or less dirty, especially in children, and the intercellular tissue being more dense and the skin less loose, the injection therefore causing more pain than in the other regions. There is very little choice between the back and the breast. The former cannot be seen by the patient, which is in some an advantage; the skin over the latter is somewhat thinner.

It has been recommended by some to inject deeply into the muscle, as it is supposed to be less painful, but I have found that it is distinctly the opposite, and also that the injection is very slow and requires much greater force applied to the syringe. The needle being introduced well into the subcutaneous tissue, the serum will flow rapidly and without much pressure being applied, and will diffuse itself, raising a tumour which disappears with the rapid absorption of the serum. It is better to inject slowly as there will be less pain both at the time and afterwards.

Of the pain and discomfort I can speak from personal experience. I received 10 cc., in the interscapular region and was surprised at the absence of all pain except that produced by the prick of the needle. The flow of serum was almost devoid of sensation and if I had not known what was taking place, I could not have given any answer as to the proceeding. In from 4 to 6 hours after the injection there begins to be a good deal of discomfort about the part. This seems to