Non-surgical face lifting: PDO threads

BY MARTYN KING

Polydioxanone or poly-p-dioxanone (PDO, PDS) is a colourless, crystalline, biodegradable polymer of multiple repeating ether-ester units and has been used in many disciplines of surgery as subcutaneous and cutaneous stitches for over 30 years. It has many advantages as a suture material due to its very high tensile strength, excellent pliability, low resistance through the skin and it produces mechanical induced skin tension and a stimulation of fibroblasts resulting in natural neocollagenesis. PDO threads have a very high safety profile, complete absorption and minimal tissue reaction making them ideal to be used in the aesthetic market.

There are many PDO threads on the market, many originating from Korea, and include monos, basics, spirals, screws, barbs, hooks, anchors, cogs, 3D and 4D threads which come in a variety of lengths and gauges and can be injected by needle or cannula (blunt or sharp).

Due to their safety and mechanism of action, PDO threads can be used in virtually any patient and almost anywhere on the face or body for lifting, skin rejuvenation and lipolysis. The most common indication in my own practice is for lifting the jowls and the ideal patient is a female in their forties with mild to moderate ptosis of the tissue. PDO threads are also ideal to be used in combination with other treatments including fillers, botulinums, platelet rich plasma and non-cross linked hyaluronic acids.

"The most common indication in my own practice is for lifting the jowls and the ideal patient is a female in their forties with mild to moderate ptosis of the tissue"

The procedure

Prior to treatment, make-up should be removed, the skin appropriately disinfected and the patient should be assessed in the upright position. Marking out should be done to identify bony landmarks and important structures as well as the areas for thread insertion. Gentle traction on the skin along the vector of the intended thread insertion will give the patient and practitioner a visual idea of what will be achieved with treatment. The patient is then placed in the semi-recumbent position, a mop cap is worn, and drapes used to create a working area.

In the treatment of jowls, my preference is to use between 3 and 5, 20G 90mm blunt cannula with a 2-0 gauge barbed suture each side. Two percent xylocaine with adrenaline is injected in a small bleb at the insertion site and then an entry hole is made with an 18G needle. Prior to insertion of the threads, the cheek area is infiltrated with 1.5-2.5ml 2% lidocaine each side administered via cannula along the intended thread insertion side. The PDO threads are inserted into the deep dermal / subdermal tissue at an initial angle of about 30 degrees. The cannulas should glide through the skin with little resistance if they lie within the right tissue plane. Once fully inserted, the cannula should be pushed a little further whilst pushing the skin upwards against the tip of the cannula to give some extra reach. The hub of the cannula is then rotated through 360 degrees and slowly removed whilst 'walking it out' with the other hand so that the suture is left within the tissue. The remaining barbs are then inserted along the pre-determined positions. Once all threads are in position, the skin markings are cleaned off the skin so that the area is not disturbed once the threads are tightened and a small amount of balm applied to reduce friction when tightening. The ends of the sutures are then fastened using a pair of sterile forceps and traction applied in the same vector as the threads whilst pushing the skin upwards along the same vector. It is normal to feel some 'popping' as the skin is lifted and this procedure should be repeated until the end result is achieved. It is normal to have about an additional 1cm of suture now outside of the skin, representing the shortened distance within the skin due to the lifting effect. The forceps are now lifted perpendicular to the skin and the sutures can be trimmed down, to avoid sutures protruding from the skin or aggravating the skin surface, it is essential to provide enough traction with the forceps whilst pushing the skin down with a pair of sterile, curved iris stitch scissors so that the ends of the sutures retract beneath the skin surface.

The procedure is completed by the insertion of 5-10 monos (40mm or 50mm) each side perpendicular to the barb threads. This serves to increase collagenesis and provide further support for the lifting threads.

Post-procedure

Following treatment, the patient should be advised to expect some minor swelling, redness and tenderness which should settle quickly. It is not uncommon for bruising to occur and rarely this can be pronounced and there is a small risk of haematoma,

Before

After

particularly if long needles are used. The risk of infection is minimised by correct patient selection and good medical technique and although I have not had any cases in my own practice, I have certainly been involved in the management of some quite severe infections following PDO threads. Occasionally the threads may work themselves out and be felt at the surface of the skin, these should be pulled out, trimmed or buried when identified to prevent infection risk.

Patients should be instructed to not massage, disturb the area or have any physical facial treatments for three weeks following treatment. Patients should keep certain facial movements to a minimum and avoid direct pressure or sleeping on the face.

Absorption is dependent on suture thickness and placement but mostly completed by six to nine months, however due to the formation of new collagen within the skin, results can last for one to two years. There will be some immediate lifting and repositioning and further improvements can be expected over the next few weeks as neocollagenesis takes effect.

Top Tips

- Insert the barbs first, then screws and the monos at the end (or equivalent).
- Use the longest thread possible for each area to get the best results (even if some of the thread needs to be trimmed).
- If treating several areas, divide them into zones and start from the top and work down. Complete one zone at a time.
- Do not leave the threads protruding out of the skin for too long.
- Ensure that when trimming the threads, tension is applied, and they are cut beneath the level of the skin.
- If a barb is being inserted too superficially, create an exit opening distally and push the tip of the needle / cannula through it so the PDO thread can be pulled out (if you try and pull it out backwards, it is likely to get stuck).

AUTHOR

Dr Martyn King,

Director, Cosmedic Skin Clinic; Director, Cosmedic Online; Chairperson, Aesthetic Complications Expert Group; Board Member, British Association of Sclerotherapists

Member and British College of Aesthetic Medicine; Chairperson, Save Face Advisory Board.

E: martyn@cosmedic-clinic.co.uk

Declaration of competing interests:
Dr King is a KOL and PDO trainer for Schuco, Medical Aesthetic Group and First Lift.

SECTION EDITOR

Dalvi Humzah,

Consultant Plastic, Reconstructive and Aesthetic Surgeon based in the West Midlands, England. He is an examiner and regional advisor for the Royal College of Physicians and Surgeons of Glasgow, Chairman of the Greater Midlands Skin Cancer NSSG and Co-Chairman of the UK Botulinum Toxin Group for Aesthetics (UKBTGA). He is a key opinion leader for the aesthetic industry and actively teaches and lectures internationally.