
Feature Article

The Blunt Cannula – Your New ‘Flexible Friend’?

“Is this a *needle* which I see before me, the handle toward my hand?”
...no it’s a blunt cannula.

If facial injectables is your specialty you’d be hard pressed not to have noticed the sudden rise in the use, availability and promotion of blunt cannulae or micro-cannulas for the administration of dermal filler products (and fat transfer), in place of the more traditional sharp needle. This practice has seen a dramatic rise in the UK, Europe and the USA in the last 2 years. So what is all the fuss about?

The attraction in the use of a blunt cannula is the reduction in the risk of ecchymosis (bruising) or swelling, the lessening of pain or discomfort from treatment for the patients due to a single insertion point, and the almost removal of the risk of damaging nerves or injecting into a blood vessel which could cause more severe complications. The lack of sharp edges compared to a needle, makes cannulas a safer option in the eyes of many. Although, bruising at the insertion point (which is made using a sharp needle) is still a consideration, depending on the patient.

As well as this there is an argument that the exit point on a cannula allows for a better application of the product within the tissues with more homogeneity of the distribution of the filler gel than is achievable via a conventional needle exit.

The flexibility of the cannula itself, compared to the stiff nature of a needle means that generally only one small incision point is needed to treat a given area as the cannula can be bent and threaded within the tissue in a variety of directions through the one entry point, something which isn’t easily possible (without tissue subcision) when trying to do with a non-flexible needle. For example, the mid-face, cheeks and the naso-labial fold could all be treated using a blunt cannula, via a single incision point, to create an overall volumising effect on a patient.

Many also believe that the use of cannulas are preferable for treating more sensitive areas of the face which are more prone to trauma and bruising, such as around the eyes (including tear troughs) and the lips. The technique is also being used successfully for hand rejuvenation treatments.

In fact many of the leading manufacturers of dermal fillers are now advocating the use of micro-cannulas instead of needles for certain treatment indications using their products.

Depending on the indication being treated and the product used, the gauge and length of the cannula are important, along with the depth of delivery, which varies from the mid and deep dermis to the upper subcutaneous fat layer and above the periosteum. Blunt cannulas are however not considered optimum for very superficial injections such as mesotherapy/skin hydration treatments or intradermal injections. It’s also important to use the correct size of cannula to match the viscosity of the product you are using.

However, just like riding a bike, the move from needles to blunt cannulas takes practice and all professionals are advised to seek training and further instruction on their best use and protocols.

This is also not the death of needles when it comes to dermal filler delivery with many users pointing out that for more precise administration you can’t beat a steady needle, in fact most still use both and will also combine their use when treating an individual patient, particularly if they are looking to touch up or treat finer imperfections towards the end of a session.

Dr. Fab Equizi from the Lip Doctor clinic in Liverpool is a huge fan, “Cannulae rule. They have transformed filling out areas like tear troughs, cheekbones and the mid face. No bruising, no risk of vascular occlusion. Needles are still essential though for precision in certain areas; I often combine the two.”

Certain skin types and thicknesses may prove difficult to treat though using blunt cannulae, making a needle the preferred option, such as skin with numerous acne scars, or in those people that have undergone injections of past filler products that have induced fibrosis within the tissue.



Clinical Evidence

There is plenty of anecdotal evidence out there from cannula converts, many of whom have been offering dermal filler injections using needles for more years and shoulder pads than they care to remember, who now, having tried blunt cannulas would not touch a needle again, but what is the evidence? Following a look at the published clinical papers, I found some interesting notes to share with you.

Well known Brazilian Dermatologist Doris Hexsel published a paper in February 2012 in *Dermatology Surgery* entitled '[Double-blind, randomized, controlled clinical trial to compare safety and efficacy of a metallic cannula with that of a standard needle for soft tissue augmentation of the nasolabial folds.](#)' In her study she took 25 patients and injected each side of their face, in the naso-labial folds, with 0.5ml of hyaluronic acid filler using either a needle or a cannula. The side used for each method was randomised. One the day of injection, participants reported fewer side effects, including pain, oedema, redness and bruising with the cannula method than with the needle. This led Dr. Hexsel to report that cannulas are a safe and useful tool to inject HA fillers into the naso-labial region.

U.S. Plastic Surgeon Louis M. DeJoseph, writing in [Facial Plastic Surgery Clinics of North America](#) in May 2012 said, "With more physicians performing injections to the face in increasingly sophisticated ways, techniques must evolve accordingly. Injectables are no longer mere wrinkle fillers but true panfacial volumizers that are placed in many different planes and tissues of the face, in contrast to fillers of the past used for the dermis. Microcannulas represent a step forward in enhancing surgeons' ability to fill the face with less discomfort, edema, and ecchymosis, with faster recovery. Microcannulas will probably play a role in volume replacement for many years to come."

An interesting paper from Italy, published in *Plastic & Reconstructive Surgery* in April 2012, where Dr. Davide Lazzeri looked at [blindness following cosmetic injections of the face](#) noted that, "Some precautions may minimize the risk of embolization of filler into the ophthalmic artery following facial cosmetic injections. Needles, syringes, and cannulas of small size should be preferred to larger ones and be replaced with blunt flexible needles and microcannulas when possible."

This all seems very positive, but one must always offer a note of caution that clinical data on the use of blunt cannula for dermal fillers is not as well documented as that with sharp needles, so long term follow-up studies need to be performed to evaluate both the techniques and it's affect on the long term efficacy and performance of the products themselves; if indeed this differs. The act of dissecting the tissues with the fanning movements of the cannula also causes collagen synthesis and can augment the clinical response of the overall treatment with the chance of less filler actually being required. It would be interesting to see some comparative trials looking at the use of the micro-cannula alone without product versus with product to see just how much difference the technique alone is accountable for.

Additionally, we have yet to see any reviews or reports on complications, such as cannula breakage due to excessive extrusion forces which can, in some cases, cause cannulas to break, something which the manufacturers try to avoid through designs which look at the thickness of the cannula walls, the exit point and the Luer-Loc mechanisms between the cannula hub and product syringe. Although a rare complication, this is something which practitioners should be prepared to think about, particularly when selecting the 'right' cannula for the product and placement intended.

As the practice increases, it is likely we will see more data on this, both independent and manufacturer sponsored to compare and contrast the techniques.

Brands Available

As with many devices within the industry, micro or blunt cannulas come in a variety of styles and sizes from a variety of manufacturers all trying to compete on the various parameters which make up a cannula.

Essentially these break down to the outside calibre of the cannula, this is what determines its gauge, just like a sharp needle. Add the length of the cannula to this gauge size and you affect the flexibility of your cannula. The length of your cannula is important depending on where you're treating and the size of the area you are targeting. Finally the internal calibre of the cannula determines the flow of the product, the amount of extrusion pressure needed to push the HA through it, depending on its viscosity. The longer the cannula is also affects this as a longer cannula creates greater resistance for the product as it flows through it for longer before exiting. Much of the manufacturer's efforts are spent on the thickness of the cannula wall, the difference between the outer and inner calibres, to create a good product flow but not make the cannula fragile or prone to breakage. By creating thin walls this also means that a small enough gauge is inserted into the patient for their comfort. Additionally some are using special coatings inside the steel to help the product to flow.

It seems in most cases that we have the French to thank for the micro-cannula, with many of the devices available in the UK medical aesthetic market stemming from across the channel.

This is by no means an exhaustive list of products available as more and more dermal filler manufacturers themselves are producing generic or own branded cannulas, in partnership with suppliers, as adjunctive products, either supplied with or encouraged at point of sale, such as Allergan EasyFlow micro-cannulas available through HealthXchange Pharmacy, Pix'L Micro Cannulas via Q-Med which are widely available through third-party wholesalers and own brand cannulae available direct from Merz Aesthetics.

Here are details of some of the more well known brands currently available. Most price ranges quoted are excluding VAT, please contact the suppliers for individual price information.

Merz Aesthetics Cannulae

Merz Aesthetics now offer a range of high-tech cannulae to partner their dermal filler portfolio of Belotero® HA products and Radiesse®. This is done in collaboration with TSK Laboratory.

According to Merz the cannula stiffness has been carefully developed to provide the optimal balance between maximising product placement precision and flexibility, with an advanced design which includes a larger inner diameter and ultra thin wall for very low extrusion force.

They quote lab and clinical tests whereby [Merz Aesthetics Cannulae](#) were compared to other brands (details of which are not given) on extrusion force. Utilising a texture analyser at a constant room temperature of 22°C, a chart speed of 50mm per minute and when measured in Newtons, Merz Aesthetics Cannulae demonstrated the lowest extrusion force for both the 25 gauge and 27 gauge cannulae for the delivery of Belotero and Radiesse.



Available direct from Merz Aesthetics only, in quantities of 10 or 20+ with a price range from £4.50 to £4.95.

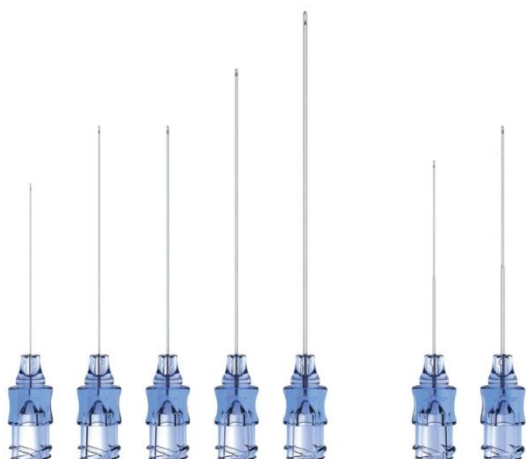
Pix'L™ Micro Cannula

Working in partnership with Q-Med (a Division of Galderma), and their range of Restylane® hyaluronic acid dermal fillers, the French company Thiebaud design and manufacture the Pix'L™ Micro Cannula, made from surgical stainless steel. To ensure high quality instruments, Thiebaud maintain that every Pix'L™ needle is precisely tested after every manufacturing step, with a total of 12 test phases as well as a test under microscope.

The [Pix'L cannula](#) has a blunt tip which does not cut through the tissue but pushes it gently to the side without injuring it. Both the inside and the outside of the cannula are smooth with no notches to make injuries to tissue unlikely. According to Q-Med a lateral outlet enables the injection to be precise, and a special inner surface layer allows optimum flow of their hyaluronic acid products when the correct cannula size for the corresponding gel particle size of the hyaluronic acid in Restylane is used.

See this video which demonstrates the difference in injection performance between a needle and the Pix'L micro cannula using a Restylane NASHA product.

www.streamio.se/Play?projectId=b0e8dab0-2c00-012e-f804-001b78cb454a



Pix'L micro cannulas are available from all the major aesthetic industry pharmacy wholesalers with a price range of £10 - £14 each.

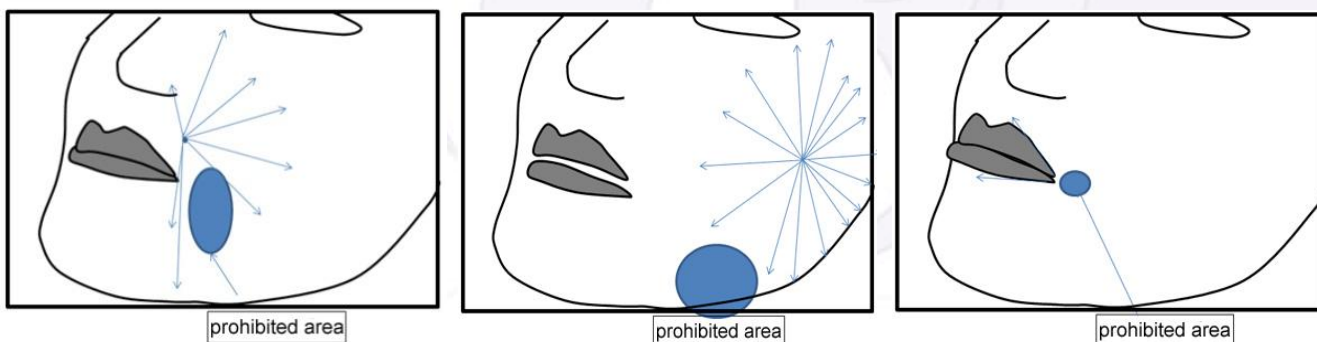
Magic Needles®

Magic Needles® or 'MN' needles were invented in France by Dr. Bernard Hertzog and are manufactured by Needle Concept. The cannulas are distributed in the UK by Rosmetics Ltd.

Magic Needles® have a rounded tip and a small aperture for the delivery of the product which is located laterally at the extremity of the cannula. According to the developers the rounded tip creates a resistance, to avoid penetration into the deep tissue layers and allows the 'needle' to slide under the skin. The cannulas are also characterised by their flexibility and suppleness, which along with the exit hole, allows the user to inject a large number of different products, regardless of the degree of their viscosity.

Needle Concept have coined a new injection concept for the use of their Magic Needles called the "SIT" or Single Injection Technique procedure. With SIT the injections are done from a single point, and are always executed in retrograde fashion in that the product is injected while the MN needle is withdrawn either in a fan-shaped pattern or a spoke-wheel pattern.

Below are some examples of the common introduction points for SIT, including the naso-labial region, restructuring and volumising and the lips.



Registered Nurse and Independent Nurse Prescriber, Ros Bown runs various clinics in the West Midlands. Ros is a member of BACN and a trainer for various companies including Magic Needles. She told us;

"As an aesthetic practitioner for over 18 years, I have experienced a vast array of dermal fillers, having started with Collagen, then Hydra-Fill, Soft Line, Juvederm, Juvederm Ultra, Restylane and more recently Esthelis and Fortelis. Despite the advances that we have seen in dermal fillers over the last 18 years there are still two problem areas that existed when I started and still exist today.

The two areas are bruising and pain. Many practitioners state "I don't have bruising". In my experience every practitioner who injects runs the risk of bruising a patient, irrespective of their technique or how many patients they inject per day. Pain relief has improved with the application of topical anaesthetic creams, although the time required for any of these creams to take effect can extend the treatment time by 30 to 50 minutes. Consequently the biggest improvement to dermal filler treatment as of today would be the elimination of either or both of these problems.

About 18 months ago I was introduced to Magic Needles™. The technique is to inject a small bolus of 2% lignocaine into the selected site, make a small entry point in the skin with the sharp needle provided, then carefully introduce the blunt needle through the same hole. The filler (irrespective of manufacturer) is then injected through the blunt cannula. Using this technique I have virtually eliminated the risk of bruising for all my patients and pain is not an issue, with over 90% of patients reporting feeling a sensation of the cannula moving under the skin, but not feeling any pain.

With a wide variety of sizes available from 22g to 30g, in a variety of lengths from 27mm to 57mm, all techniques can be accommodated, be it lip augmentation, deep cheek filling, jaw definition, tear trough or even glabellar line filling. My practice has changed dramatically since I started using Magic Needles™ and in the last 6 months my use of sharp needles for injecting HA fillers has vastly decreased.

Other practitioners have asked me why I have chosen Magic Needles. In my experience the memory of the steel used to make the cannula ensures that the cannula always returns to the original shape, thereby allowing me to know exactly where the tip is."

Magic Needles are available through Rosmetics and Wigmore Medical in boxes of 10 or 20 with a price of £4.50 to £6.00 each.

Silkann

Silkann by Sterimedix is designed and manufactured in the UK. Sterimedix have been making and selling single use surgical products for over 20 years, primarily for ophthalmology, and launched the Silkann range for facial aesthetics in December 2011.

Silkann products claim to use the highest quality manufacturing systems with state of the art production techniques which produce consistent products, packaged well to maintain their integrity.

The design of the cannula is very important with emphasis on the quality of the cannula and the exit point, or port, to ensure consistent results during treatment and the optimum flow of the filler product whilst reducing the force required to inject.

In order that the practitioner can be assured of the position of the side port on the cannula, Silkann have added two indicators into the design of the hub which show the orientation of the port during injection, allowing for exact product delivery.

Another design innovation that Silkann are proud of is the reduction in the risk of the cannula becoming detached from the syringe of product as a result of the pressures exerted during injection. To combat this potential, the hub on the Silkann cannula has been designed with two particular features; a screw thread to ensure a tight join between cannula and syringe and the use of polycarbonate to make the hub, a material which has a higher frictional coefficient than standard polypropylene which is used more often.

Silkann are available in boxes of 40, direct from Sterimedix with a price range of £3.30 to £3.60.



DermaSculpt®

DermaSculpt blunt tipped micro-cannulas have been developed and manufactured by CosmoFrance Inc, based in Miami, Florida. In the UK they are distributed by **Medical Aesthetic Group** (MAG).



Available in 7 different sizes, the company claims to have a cannula size for each dermal filler available on the market, ranging from those with low viscosity, through to medium and highly viscous products, along with autologous fat – something of a bold claim for those outside of the USA (and it's FDA restrictions) when you consider the number of HA products available in Europe.

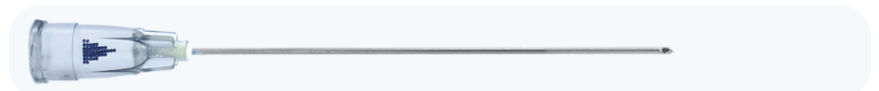
The company markets a Skin Sculpting Technique (SST™) which as well as delivering the dermal filler product also describes the dissection of the dermis with multiple passes of the cannula, which leads to collagen synthesis as well as product placement, which they also claim is reduced in quantity using this method.

More clinical studies using the DermaSculpt brand can be found here - http://dermasculpt.net/clinical_study

DermaSculpt are available in boxes of 20, with a price range of approximately £5 each.

STERiGLIDE

The STERiGLIDE from **TSK Laboratories** in Japan, a company that has been making specialised needle products since the 1907s, is due for its global launch this month (October 2012). Its European distribution arm is based in Holland.



The company already produces a Closed Tip Side Hole (CSH) cannula which features an ultra thin wall and a threaded hub made from a rigid polymer which doesn't flex, instead of polypropylene, to avoid fixation problems. This cannula is also available in partnership with Merz Aesthetics.

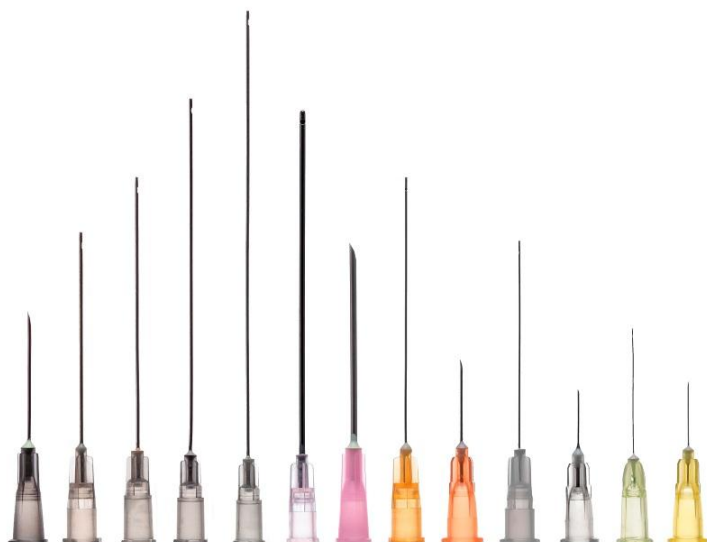
The company is launching their next generation product, the STERiGLIDE with the claim that its 'ultimate gliding characteristics result in up to 50% less penetration force'. This is due to a unique, proprietary surface treatment (a trade secret!) to the cannula which aids the way it moved once within human tissue. The cannula hub also features marks to allow the practitioner to know the orientation of the exit hole. They also boast the 'nearest to tip' filler delivery based on the position of their exit port.

Equally the company believe the packaging of their cannula is important, noting that it comes in a hard shell capsule which is aimed at making it easier to attach the cannula, with a tight fit, to the Luer-Lock syringe.

Upon launch, STERiGLIDE will be available in boxes of 20.

SoftFil®

Another flexible micro-cannula to come from a French manufacturer is the **Softfil®**. Claimed to be used in more than 80 countries and available in 15 different sizes, lengths and calibres, the Softfil range includes the Softfil Classic, (their original cannula) and the Softfil Precision.



Within the Classic range the cannulas have either a regular sized internal calibre and regular thickness of the cannula wall or a large internal calibre and a thick wall. The Precision range differs by having extra large inside calibres to the cannulas and an extra thin wall. It also has a dot on the hub to indicate the side of the exit hole and graduation every centimetre on the cannula itself.

The use of the cannulas is marketed as the Soft Filling Technique®.

Available in boxes of 20 direct from the French manufacturer, with a price range of €4 - €5 each, (approx. £3 - £4).

Summary

Judging by the number of blunt cannula products now available to those involved in facial aesthetics in the UK, and the number of demonstrations and discussions on their use for dermal filler delivery seen at FACE 2012 and other meetings this year, it's likely that techniques utilising them will become more widespread and something of a norm. With the use of fillers moving away from the 'wrinkle and line filling' of a decade ago to 'volumising' and 'facial contouring' techniques and associated product placement, it certainly seems that the cannula is the new man for the job, that's not to say the needle is going into early retirement any time soon!



Lorna Jackson

Lorna has been Editor of The Consulting Room™, the UK's largest aesthetic information website, for nine years. She has become an industry commentator on a number of different areas related to the aesthetic industry, collating and evaluating statistics and writing feature articles, blogs, newsletters and reports for The Consulting Room™ and various consumer and trade publications, including *Aesthetic Medicine*, *Cosmetic News* and *Aesthetic Dentistry Today*.

If you have any comments or suggestions regarding this article, please email clinicarea@consultingroom.com

