

# Barbed PDO Thread Face Lift: A Case Study of Bacterial Complication

Paweł Surowiak, MD, PhD\*†

**Summary:** Procedures with polydioxanone (PDO) threads are increasingly used for aesthetic indications. To date, eight cases of serious complications following the use of PDO threads have been published. In this case report, we present a case of a serious bacterial complication after a procedure with four PDO threads. A 52-year-old female patient presented to our center 1 month after undergoing the procedure at another center. Despite early symptoms, no treatment had previously been implemented. Perforating abscesses were found along the course of the threads. After 5 days of antibiotic therapy (amoxicillin 875 mg and clavulanic acid 125 mg *p.o.* every 12 hours), the threads were surgically removed due to skin rippling. During the procedure, the threads were found to be fragile, and several incisions were necessary to remove them. After 1 month, no signs of inflammation were reported. However, persistent deformities occurred due to delayed treatment implementation. Bacterial complications seem to be a typical complication following the procedure with PDO threads. PDO threads can be difficult to remove due their fragility. The possible need for surgical removal of the threads should be considered when selecting areas for application. (*Plast Reconstr Surg Glob Open* 2022;10:e4157; doi: 10.1097/GOX.0000000000004157; Published online 7 March 2022.)

Recently, polydioxanone (PDO) threads have been widely used for aesthetic purposes. Most studies describe the use of PDO threads to achieve the effect of minimally invasive lift<sup>1</sup> and to correct the shape of the nose.<sup>2</sup> In most studies, the most frequent side effects included mild bruising and swelling, which may last 1 or 2 weeks. Bertossi et al<sup>3</sup> retrospectively described the results of 160 procedures with PDO threads. The overall complication rate in the early postoperative period was 34%, of which 11.2% presented with displacement of the barbed sutures, 9.4% experienced transient erythema, 6.2% had a clinically insignificant infection, 6.2% experienced skin dimpling, and 1.2% had temporary facial stiffness. Niu et al<sup>4</sup> described the following complications after PDO thread procedures: edema (35%), skin dimpling (10%), paresthesia (6%), thread visibility/palpability (4%), infection (2%), and thread extrusion (2%). Patients aged more

than 50 years had a significantly higher risk of dimpling (16% versus 5.6%) and infection (5.9% versus 0.7%) compared with their younger counterparts. Kim et al<sup>5</sup> described seven cases of complications after rhinoplasty with PDO threads. Three patients presented with serious complications with open wounds, abscesses, and skin necrosis. A mild complication in the form of redness and thread exposure without open wounds was reported in four patients. Ahn and Choi<sup>6</sup> described the patient who was consulted due to inflamed multiple palpable masses at the site of the application of PDO threads. Antibiotic therapy did not reduce inflammation. Therefore, surgical removal of the threads was performed under local anesthesia. Another bacterial complication was a facial abscess in a patient who had undergone a procedure with PDO threads, which was performed by a nonphysician.<sup>7</sup> The complication may have been caused by applying an inadequate technique. One of the serious bacterial complications related to PDO threads is late-onset chronic purulent skin.<sup>8</sup> Another aspect associated with the use of PDO threads is related to the fact that their absorption may be much slower than indicated by the manufacturer, or they may not be absorbed at all. Baek et al reported a case of a 62-year-old woman who developed inflammation 2 years after the PDO procedure that continued for another 2 years. After the removal of inflammatory infiltrates, the epidermal inclusion cyst and PDO threads were found histologically.<sup>9</sup>

From the \*Department of Histology and Embryology, Department of Human Morphology and Embryology, Wrocław Medical University, Wrocław, Poland; and †Dermamed Centre of Aesthetic Medicine and Laser Therapy, Wrocław, Poland.

Received for publication October 19, 2021; accepted January 4, 2022.

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DOI: 10.1097/GOX.0000000000004157

**Disclosure:** The author has no financial interest to declare in relation to the content of this article.

PDO threads are commonly used in aesthetic medicine and also by beauticians, who often do not offer adequate hygienic conditions. Only a small percentage of complications is reported, probably because the procedures related to aesthetic medicine are performed in small, private offices. Considering that relatively little is known about PDO lifting threads and they are commonly used in various areas of the face and body, there is a pressing need to report any complications related to such procedures. The aim of the study was to describe a case of a serious bacterial complication after a PDO thread procedure.

### CASE REPORT

A 52-year-old female patient presented to our center 1 month after undergoing a procedure with four BARB 4D threads (Croma Pharma, Poland), which had been performed at another center by another physician. To the physician who performed the procedure, the patient reported swelling and tenderness, which occurred on day 2 post procedure. The physician performing the procedure prescribed a hydrocortisone cream. The physician did not offer the patient another treatment option despite several follow-up visits.

On the day of the patient's visit to our center, which occurred 1 month postprocedure, we found abscesses along the course of the threads, which perforated in several areas (Fig. 1A). Abscesses were located on both sides of the face. Two threads were bilaterally located from the temporal hairline to the nasolabial furrow. Two other threads were also located from the temporal hairline to the corner of the mouth.

A purulent discharge with the fragments of the threads was visible from the perforating lesions. Antibiotic therapy

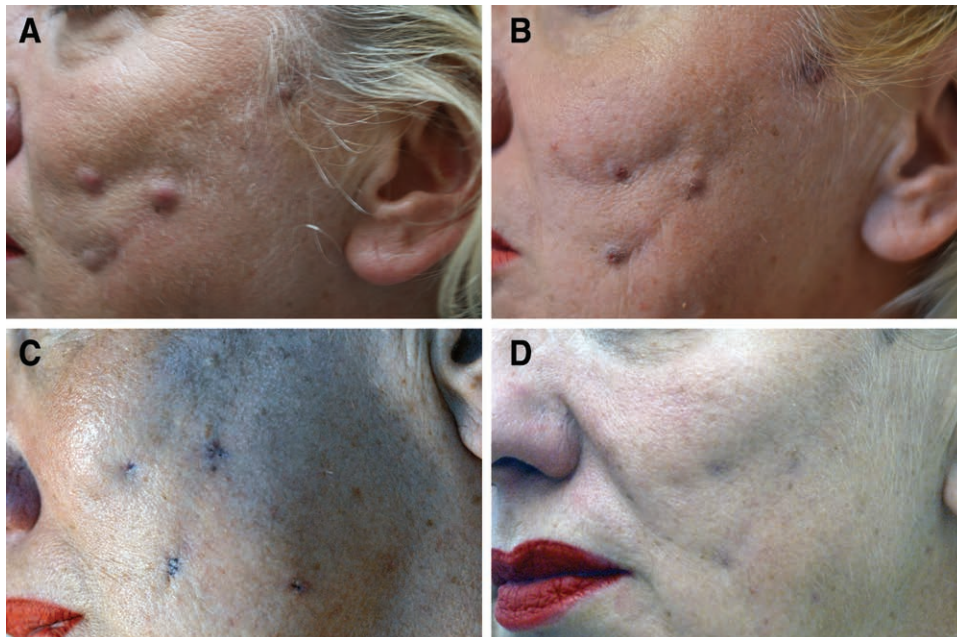
was instituted (amoxicillin 875 mg and clavulanic acid 125 mg *p.o.* every 12 hours). Reduced swelling was noted the following day. On day 5 during the follow-up visit, a significantly lower inflammatory reaction and less pronounced edema were reported. The presence of abscesses was still noted. Clear tissue rippling, which deformed the skin when smiling, was observed along the course of the threads (Fig. 1B). Due to the presence of abscesses and rippling, the patient underwent surgical removal of the threads under local anesthesia.

In the first stage, an attempt was made to remove each thread en bloc, using a single incision with a sterile crochet hook. The threads broke into pieces during the removal attempt. Therefore, it was necessary to make several incisions along each thread and remove the fragments of the threads. The regions where threads were previously located were rinsed with 0.9% NaCl solution.

Finally, the threads were successfully removed (Fig. 1C). The patient was advised to continue antibiotic therapy for another 10 days. No inflammation was found 1 month after the procedure. However, significant inflammation-related deformities were noted. No skin pulling along the course of the threads was reported at the last follow-up visit 30 days after thread removal, 35 days after treatment initiation, and 65 days after the procedure (Fig. 1D).

### DISCUSSION

The presented case of a bacterial complication after the application of PDO threads is another example of therapeutic difficulties in the case of this type of complication. Considering that the threads were inserted under the skin of a healthy patient in the hairline area and the infection occurred around all the threads, the most probable explanation of the



**Fig. 1.** The course of treatment of a bacterial complication after surgery with PDO threads. A, The patient on the day of treatment initiation. Clear thickening and abscesses were visible along the course of the PDO threads. B, The patient after 5 days of antibiotic treatment, with a marked reduction in edema and visible tissue pulling along the course of the threads. C, The patient after surgical removal of PDO threads. D, The patient 1 month after surgical removal of the threads (no signs of inflammation; visible deformations).

complication is either incorrectly performed procedure or inadequate conditions during the procedure.

There are only a few studies describing the clinical course of PDO thread lifts. Depending on the study, bacterial complications occurred in 6.2%<sup>3</sup> or 2% of cases.<sup>4</sup> A study on the treatment of 190 complications of PDO thread lifts<sup>10</sup> showed that bacterial complications accounted for 8.9% of all complications. In addition, some case reports were also published.<sup>5–9</sup> It seems essential to describe any therapeutic difficulties due to insufficient information on the treatment of complications connected with thread lifts.

In the presented case, the threads broke into pieces during the removal attempt. It was necessary to make many incisions to remove them completely. The threads are made of PDO, poly-l-lactic acid, and polycaprolactone. Currently, there are no data comparing their safety. Bacterial complications seem to be a typical complication following the procedure with PDO threads. The removal of PDO threads as part of the treatment of complications may be difficult. The anatomical regions in which the threads are used should be considered.

**Pawel Surowiak, MD, PhD**

Department of Histology and Embryology  
Department of Human Morphology and Embryology  
Wroclaw Medical University, ul. Chałubińskiego 6a  
50-368 Wroclaw, Poland  
E-mail: [pawel.surowiak@interia.pl](mailto:pawel.surowiak@interia.pl)

## REFERENCES

1. Bernardini FP. Is there a role for a noninvasive alternative to face and neck lifting? The polydioxanone thread lift. *Aesthet Surg J.* 2019;39:362–363.
2. Kang SH, Moon SH, Kim HS. Nonsurgical rhinoplasty with polydioxanone threads and fillers. *Dermatol Surg.* 2020;46:664–670.
3. Bertossi D, Botti G, Gualdi A, et al. Effectiveness, longevity, and complications of facelift by barbed suture insertion. *Aesthet Surg J.* 2019;39:241–247.
4. Niu Z, Zhang K, Yao W, et al. A meta-analysis and systematic review of the incidences of complications following facial thread-lifting. *Aesthetic Plast Surg.* 2021;45:2148–2158.
5. Kim HJ, Lee SJ, Lee JH, et al. Clinical features of skin infection after rhinoplasty with only absorbable thread (polydioxanone) in oriental traditional medicine: a case series study. *Aesthetic Plast Surg.* 2020;44:139–147.
6. Ahn SK, Choi HJ. Complication after PDO threads lift. *J Craniofac Surg.* 2019;30:e467–e469.
7. Joethy JV, Cheah A, Ang CH. Facial abscess from unlicensed thread lift. *Singapore Med J.* 2020;61:498–499.
8. Wang Y, Yang L, Li M, et al. Rare case of late-onset chronic purulent skin and soft tissue infection after nonabsorbable thread lifting and treatment. *J Cosmet Dermatol.* 2021;20:3291–3293.
9. Baek SO, Shin J, Lee JY. Epidermal inclusion cyst formation after barbed thread lifting. *J Craniofac Surg.* 2020;31:e493–e494.
10. Li YL, Li ZH, Chen XY, et al. Facial thread lifting complications in China: analysis and treatment. *Plast Reconstr Surg Glob Open.* 2021;9:e3820.