

The Impact of COVID-19 on Outcomes in Aesthetic Medicine: A Multicentre Retrospective Study of Italian Patients

Maurizio Cavallini^{1*}, Pierfrancesco Cirillo², Salvatore Piero Fundaro³, Gabriele F Muti⁴, Adriano Santorelli⁵, Giovanni Salti⁶

¹Operative Unit of Dermatologic and Plastic Surgery, CDI Hospital, Milan, Italy; ²Italian Association of Aesthetic Plastic Surgery, Rome, Italy; ³Multimed Institute, Bologna, Italy; ⁴Department of Plastic Surgery, European Dermatological Institute, Milan, Italy; ⁵Academy of Aesthetic Sciences, Naples, Italy; ⁶Medlight Institute, Florence, Italy

ABSTRACT

COVID-19 has profoundly affected the delivery of aesthetic treatment to the general public. In our cohort of patients who underwent botulinum toxin, soft tissue filler infiltration, and thread lifting using bioabsorbable suspension threads from January to April 2020, there was no observed increase in the number of complications. Although cutaneous complications were seen in some botulinum toxin and soft tissue filler injection recipients, the observed complication rates were similar to pre-pandemic figures. Also, these were relatively mild and were easily reversible with supportive therapy. Patients who underwent suspension thread placement did not have apparent complications regardless of having had systemic symptoms attributable to COVID-19. Regardless of the rapid upsurge of the number of cases from February to March, the reported incidences of cutaneous manifestations of possible complications remained low.

Keywords: Covid-19 pandemic; Complications; Aesthetic medicine; Dermatology; Botulinum toxin; Fillers; Thread lift

INTRODUCTION

We have witnessed great social and institutional upheavals brought about by the global coronavirus disease-2019 (COVID-19) pandemic. All physicians, including us dermatologists, plastic surgeons and aesthetic medicine specialists, have had to re-learn and initiate novel approaches to continue practicing and update protocols in response to country-wide calls for preservation of patient safety [1,2]. The need for stringent measures is most felt in countries with extreme case fatality figures such as Italy [3]. Intuitively, one might say that an inclement economy and strict social distancing measures could dampen the demand for dermatologic and aesthetic services and should lead to the closure of clinics for personal care services. Nonetheless, there continues to be a demand for dermatologic and aesthetic treatments in many areas across the nation. In a recent online survey conducted by over 200 Italian clinicians enlisting more than 8,000 respondents, about 50% stated that they 'did not feel influenced in their desire for aesthetic treatments in spite of the pandemic emergency' with men and younger individuals appearing to be less concerned [2].

Patients who seek elective aesthetic services are understandably

apprehensive. This is because apart from its apparent respiratory consequences, COVID-19 has been recognised to lead to major extra-respiratory complications as a result of a systemic inflammatory phenomenon caused by the virus. These outcomes include cardiac, gastrointestinal, hepatic, renal, neurological, olfactory, gustatory, ocular, cutaneous and haematological sequelae, with some possibly having long-term and permanent effects [4]. Skin symptoms that are associated with Covid-19 include erythematous rashes (15.9%), hives (3.4%), vesicles (1.1%), acro-ischaemia, and a transient unilateral livedo reticularis [4]. In a cohort of 148 hospitalised Covid-19 positive patients from Lombardy, up to 20.4% developed cutaneous manifestations with eight of them having early onset, and 10 having these days after discharge [5]. Clinically, these findings are likely to confound cutaneous symptoms attributable to aesthetic treatments.

Because of the popularity of minimally invasive options, more patients have sought injection-based treatment for age-related and structural concerns. These options include, but are not limited to, botulinum toxin, soft tissue filler injections, and recently, tissue lifting using bioabsorbable suspension threads.

Correspondence to: Maurizio Cavallini, Operative Unit of Dermatologic and Plastic Surgery, CDI Hospital, Via Simone Saint Bon 20, 20147 Milan, Italy, Tel: +392483171; E-mail: maurizio.cavallini@libero.it

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These procedures have the advantage of being done at once or in a few visits alone or in combination. Essentially, injection of botulinum toxin is made for the correction of dynamic wrinkles, soft tissue infiltration of hyaluronic acid (HA)-based fillers is done to restore facial volumes, fill wrinkles and redefine facial profiles, and suspension threads are placed to reposition facial tissue that have been affected by skin changes and fat loss influenced by gravity. There is growing concern in recent years regarding the safety of these procedures as more and more people engage in injection-based treatments owing to their widespread commercial acceptance [6,7].

DOES COVID-19 ALTER OR COMPLICATE AESTHETIC OUTCOMES?

We sought to evaluate major cutaneous complications following aesthetic procedures. We also wanted to identify the proportion of these cutaneous manifestations attributable to COVID-19 in order to understand if there were indirect reactive and inflammatory processes possibly altering the treatment sites of botulinum toxin, fillers, and suspension threads at the tissue level.

At the first 4 months of 2020, we initiated a multicentre study involving six Italian plastic and aesthetic surgeons who have extensive experience in aesthetic medicine. Data from 470 patients who underwent treatment during the pre-pandemic period of 1 December 2019 to 29 February 2020 were retrospectively collected. These patients were all female aged from 20 to 70 years old. These aesthetic procedures involved infiltration with crosslinked HA to the middle and lower third of the face, infiltration of botulinum toxin type A in the upper third of the face and insertion of barbed suspension threads. We included population samples from five different regions including Lombardy, Emilia-Romagna, Tuscany, Lazio and Campania. A data collection form was prepared and included reported events from the period of 1 January 2020 to 30 April 2020. We included specific questions on the constitutional manifestations of infection (i.e., fever, anosmia, sore throat, conjunctivitis, nasal congestion, asthenia, cough and intestinal symptoms, specifically diarrhoea). Moreover, the forms also included questions related to cutaneous symptoms (i.e., erythema, oedema, nodules, infectious signs, pain in the sites of injection) while at the same time noting the time of onset and duration these symptoms. Nasopharyngeal swabs or serological tests were not required from these patients.

RESULTS

The results of our retrospective analysis showed that out of 470 patients, there were 34 cases (7.2%) with systemic symptoms from possible COVID-19 infection, shown in Table 1.

Table 1: Systemic symptoms reported by patients who underwent aesthetic treatments.

Symptom/s	Number of cases	Percentage (%)
Fever	15	3.1
Asthenia	10	2.1
Severe nasal congestion	6	1.2

Severe cough	7	1.5
Sore throat	8	1.7
Conjunctivitis	5	1.1
Anosmia/parosmia	9	1.9

Of the 34 registered cases of possible systemic symptoms, we recorded the cutaneous findings from recipients of botulinum toxin and soft tissue filler injections shown in, Table 2.

Table 2: Cutaneous symptoms in the cohort of patients with systemic manifestations of possible COVID-19 infection.

Cutaneous symptom/s	Number of cases	Percentage (%)
Erythema with local pain at injection site	3	0.6
Oedema	4	0.9
Reactive nodule	1	0.2

No severe reactions, such as malposition of material in injected sites, vascular occlusion, allergies, and immunologic reactions were noted. The observed mild reactions occurred from 2 days to 2 months post treatment and post infiltration of botulinum and HA. There were no cases of complications arising from the use of the bioabsorbable suspension threads. Looking at literature from around the world, rates of these reactions appear to fall within incidence ranges of reactions prior to the pandemic, i.e., local injection site reactions including erythema and oedema (0.02 to 0.07% for fillers, as much as 19% for toxins), and foreign body granulomas (0.02 to 0.4% for fillers) [8,9]. The relatively lower rates of adverse outcomes may be a result of the relative breadth and length of experience of the injectors with the products used for these patients.

WHAT DO WE KNOW AND WHAT SHOULD WE EXPLORE?

The COVID-19 pandemic was officially established by the World Health Organization on the 11th of March 2020. Prior to this, an outbreak started in Lombardy on the 21st of February, shown in Table 3 [10]. The cumulative number of patients then doubled from roughly 1,000 to 100,000 cases between 29th of February to 31st of March nationwide [10,11].

COVID-19 has profoundly affected the delivery of aesthetic treatment to the general public. In our cohort of patients who underwent botulinum toxin, soft tissue filler infiltration, and thread lifting using bioabsorbable suspension threads from January to April 2020, there was no observed increase in the number of complications. Although cutaneous complications were observed in some botulinum toxin and soft tissue filler injection recipients, the observed complication rates were similar to pre-pandemic rates. Also, these were relatively mild and were easily reversible with supportive therapy. Patients who underwent suspension thread placement did not have apparent complications regardless of having had systemic symptoms attributable to COVID-19. Despite the rapid upsurge of the number of cases from February to March, the reported incidences of cutaneous manifestations of possible complications remained low.

Table 3: Cumulative number of COVID-19 cases in Italy and the five administrative regions included in this study from 1 January to 30 April 2020 [10,11].

Area	Number of confirmed cases			
	1-31 January	1-29 February	1-31 March	1-30 April
Italy [11]	3	1,049	104,710	94,888
Lombardy [10]	0	615	43,208	30,959
Emilia-Romagna [10]	0	217	14,074	10,649
Tuscany [10]	0	11	4,608	4,485
Lazio [10]	0	6	3,095	3,352
Campania [10]	0	13	2,092	2,191

DISCUSSION AND CONCLUSION

Among the limitations of this paper is its retrospective nature. Ideally, a comparison of outcomes in patients with different serostatus and their cutaneous symptoms should provide evidence of any association between the presence of the viral infection and the severity of these clinical outcomes. More studies are needed to determine if aesthetic procedures increase the risk for COVID-19 related morbidity or if there exists an association between complications and the severity of the inflammatory hallmarks of illness. Technical differences may also exist among the injectors and inevitably, self-reported outcomes may confound the objectivity of clinical outcomes. Long-term follow-up of these patients may reveal clinically relevant outcomes that may be worth noting.

DISCLOSURE

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