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BICHECTOMY AN ACT OF ALIENIZATION: EVOLUTION OF PRACTICES FROM THERAPEUTICS TO AESTHETICS

An integrative systematic review

Kalissa Assogo Mbia Charréron

Dissertation leading to the degree of Master in Dental Medecine

(Integrated cycle)

Gandra, 30 de maio 2022

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Work carried out under the supervision of Master Marco Infante da Câmara.

Integrity Statement

I, Kalissa Assogo Mbia Charréron identified above, declare to have acted with absolute integrity in the preparation of this work, confirming that in all the work leading to its preparation I have not resorted to any form of falsification of results or the practice of plagiarism (act by which an individual, even by omission, assumes authorship of the intellectual work belonging to another, in its entirety or in parts of it). I also declare that all the sentences that I have taken from previous works belonging to other authors have been referenced or re-written with new words, in which case I have included the citation of the bibliographic source.

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Obrigada!

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DIPLOMA

O Presidente das XXX Jornadas Científicas de Ciências Dentárias certifica que:

CHARREON K., JEUDI M. , MAZIERE M. , AITOUALI N. , CAMARA MI, COSTA JA

apresentaram um trabalho científico sob a forma de E-poster intitulado, **"Bichectomia : protocolo e complicações do procedimento"** no âmbito das XXX Jornadas subordinadas ao tema "Workflow digital nas distintas frentes de ação da Medicina Dentária", que decorreram no dia 08 de abril de 2022, no Centro de Congressos da Alfândega do Porto.

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Diploma for a scientific paper entitled "Bichectomy: protocol and complications of the procedure", presented at the XXX Conference of Dental Sciences, which took place on 8 April 2022, at the Alfândega Congress Centre in Porto.

Abstract

Introduction: The evolution of beauty ideals in our modern societies, conveyed by the omnipresence of social networks and screens in our daily lives, transcends the obsession with body image and modifies the use of cosmetic surgery in a simple medical act. We're going to see how we pass from therapeutic into aesthetics surgery in the case of bichectomy.

Objectives: The main aims of this research are to: explain why bichectomy is an operation that has seen an increase in procedures over the last 6 years and how a therapeutic operation has become almost exclusively cosmetic. Also, is to understand the challenges of the dental or maxillofacial surgeon in relation to this type of procedure and their role in relation to patients.

Material and methods: A literature search was performed on PubMed; Cochrane Library; Plastic and reconstructive surgery Journal; Juniper Publishers; The British Medical Journal and Google scholar databases using the following keywords MeSH: “Dentist patient relation”; “Clinical ethics”; “Maxillofacial procedure”; “Oral surgery procedure”; “Fat pad surgery”; “Body Dysmorphic Disorder”.

Results: 12 articles were selected between 2016 and 2022 with relevant interest for this work. Bichectomy is a trendy operation. Although it has a therapeutic purpose in the first place, it is now used for aesthetic purposes. The number of cases of bichectomy is on the increase. It highlights the evolution of our Western beauty ideals.

Conclusions: What is causing this increase in the number of bichectomy is the alienization trend, fed by social networks. Which in turn triggers behavioural disorders such as body dysmorphic disorder. There is a co-relation between all these terms.

KEYS-WORDS – *“Maxillofacial procedure”; “Oral surgery procedure”; “Fat pad surgery”; “Body Dysmorphic Disorder”; “Dentist patient relation”; “Clinical ethics”*

Resumo

Introdução: A evolução dos ideais de beleza nas nossas sociedades modernas, transmitida pela omnipresença de redes sociais e das telas na nossa vida diária, ultrapassa a obsessão com a imagem corporal e transforma o uso da cirurgia estética num simple acto médico. Vamos observar como passamos duma cirurgia que era inicialmente terapêutica para a estética no caso da bichectomia.

Objectivos: Os principais objetivos desta investigação visam a: explicar porque é que a bichectomia é uma operação que tem visto um aumento de procedimentos nos últimos 6 anos e como uma operação terapêutica se tornou quase exclusivamente estética. Compreender os desafios do cirurgião dentário ou maxilo-facial em relação a este tipo de procedimento e o seu papel em relação aos pacientes.

Material e métodos: Foi realizada uma pesquisa bibliográfica no Pubmed; Cochrane Library; Plastic and reconstructive surgery Journal; Juniper Publishers; The British Medical Journal e Google scholar usando as seguintes palavras-chave MeSH: "Dentist patient relationship"; "Clinical ethics"; "Maxillofacial procedure"; "Oral surgery procedure"; "Fat pad surgery"; "Body Dysmorphic Dismorphic Disorder".

Resultados: 12 artigos foram selecionados entre 2015 e 2022 com relevância para este trabalho. Atualmente, a bichectomia é uma operação de tendência. Apesar de ter uma finalidade terapêutica no início, é agora utilizada a fins estéticos. O número de casos de bichectomia aumenta. Destaca a evolução dos nossos critérios de beleza ocidentais.

Conclusões: O que está a causar o aumento do número de bichectomias é a tendência para a alienação, alimentada pelas redes sociais. O que, por sua vez, desencadeia perturbações comportamentais, como a dismorfia corporal. Existe uma co-relação entre todos estes termos.

PALAVRAS-CHAVES - *"Maxillofacial procedure"; "Oral surgery procedure"; "Fat pad surgery"; "Body Dysmorphic Disorder"; "Dentist patient relation"; "Clinical ethics"*

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LIST OF ACRONYMS AND ABBREVIATIONS

BDD – Body Dismorphic Disorder

BFP – Buccal Fat Pad

Dr.S.H – Doctor Steven Harris

K.C – Kalissa Charréron

PICOS – Patient, Intervention, Comparison, Outcome, Study design

PRISMA – Preferred Reporting Items for Systematic Reviews and Meta-Analyses

SJR – The Scientific Journal Ranking

US – UltraSound

USG – UltraSound Guided

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1. INTRODUCTION

The evolution of beauty ideals in our modern societies, conveyed by the omnipresence of social networks and screens in our daily lives, transcends the obsession with body image and modifies the use of cosmetic surgery in a simple medical act. These transformations in relation to aesthetics are reflected by a significant increase of requests for maxillofacial surgery, formerly reserved mainly for therapy. According to a study by the International Master Course of Aging Skin - a World congress bringing together professionals in the sector in 2019, 18–34-year-olds now resort to cosmetic surgery more than the 50–60-year-old group who held the monopoly until now. We note that this decline in the age group shows that cosmetic surgery no longer aims to reduce the signs of old age and cultivate youth but to reshape to get closer to “perfection.” [(1)]

These “remodels” take root in complexes maintained and fed, among other things, by Snapchat filters, Instagram filters and TikTok, what plastic surgeon Dr. Tijon Esho in 2018 called the “Snapchat dysmorphia.[(1)]

Curiously, 25-34 years old(s) are the most present on social networks (32.1%) and 70% of instagramers in the world are under 34 years old [(2)] which reconciles with the exact slice of age who now carries out the most operations. It is obvious that as the platforms are maintained and fed mainly by young people and young adults, its content therefore targets this same audience.

These societal evolutions are therefore shaking up the practices of dental surgeons and maxillofacial surgeons today and it is important to address this theme with regard to the practical and ethical aspects / constraints that it raises. In fact, the number of bichectomy’s operation has tripled in recent years. [(3)] Due to its cosmetic purpose, plastic surgery is basically the area responsible for performing bichectomy, although other areas may also have resort to it, such as maxillofacial surgery or head and neck surgery. [(3)]

Maxillofacial surgery is a specialty of dental surgery, accessible after obtaining the degree of doctor of dentistry. It is currently dealing with the problems of facial trauma, oral cavity cancers, facial skin tumours and craniofacial malformations.

It supports facial abnormalities, including facial dysmorphism (prognathism, retrognathism, asymmetry, micromandibulia) and cosmetic surgery of the face. [4] Since bichectomy is an act within the competence of the maxillofacial surgeon, this research contributes to the field of dentistry and maxillofacial medicine.

My ambition is to provide keys to understanding the issues of bichectomy in maxillo-facial surgery on a therapeutic, aesthetic and ethical level. The expected result of this research is also to pave the way for a multidisciplinary reflection involving cosmetic surgery, statistics, communication, sociology, psychology, and philosophy in order to project this research to the neurosciences.

2. OBJECTIVES

The main objectives of this integrative systematic review aim to:

1. Understand why bichectomy is an operation that has seen an increase in procedures over the last 6 years.

2. Understand how a therapeutic operation has become almost exclusively aesthetic in purpose.

3. Understand the challenges of the dental or maxillofacial surgeon in relation to this type of procedure and his or her role in relation to patients.

3. MATERIAL AND METHODS

3.1 Protocol and Registration

The review protocol used was the one described according to PRISMA recommendations (PRISMA Statement). Using the PRISMA 27-item checklist.

3.2 Eligibility Criteria

The studies included in this integrative systematic review were selected according to the following criteria, following the PICOS strategy: "Population, Intervention, Comparison, Outcomes and Study design" in Table 1.

Population	Teenagers, young adults and adults of every ethnicity and every kind (Male or Female).
Intervention	The bichectomy: the ethical issues relating to this operation
Comparison	The evolution of current beauty ideals influenced by society/ social medias in the maxillo-facial area.
Outcomes	How does this therapeutic surgical technique evolve into a practice of aesthetics?
Study design	Qualitative study

Table 1. *PICOS's strategy.*

3.3 Inclusion and Exclusion Criteria

Inclusion criteria	Exclusion criteria
Randomized Clinical trial	Articles not accessible or incomplete
Articles published between 2015 and 2022	Thesis, Dissertation, In vitro study, Systematic review
Human studies	Animal studies
Articles in English, Portuguese	Articles in languages other than English, Portuguese and French
	Studies on rhinoplasty

Table 2. *Inclusion and exclusion criteria.*

3.4 Sources of information

A literature search was conducted on PubMed; Cochrane Library; Plastic and reconstructive surgery Journal; Juniper Publishers; The British Medical Journal and Google scholar databases using the following keywords MeSH: "Dentist patient relation"; "Clinical ethics"; "maxillofacial procedure"; "Oral surgery procedure"; "Fat pad surgery"; "Adipose Tissue / surgery"; "Body Dysmorphic Disorder" and used in different combinations related to the topic in question.

Articles published between November 2015 and January 2022 with the following languages were used: Portuguese and English. The search strategies were detailed in Table 3.

Database	Research Strategy	Articles identified	Selected articles
PubMed	((bichectomy) OR ((dysmorpho-phobia) AND (facial) AND (sur-gery)) NOT (rhinoplasty)	7	3
Cochrane Li-brary	bichectomy in Title Abstract Key-word OR "alienization" in Title Abstract Keyword AND surgery in Title Abstract Keyword OR dys-morphophobia in Title Abstract Keyword AND facial in Title Ab-stract Keyword	5	1
Google scholar	(bichectomy surgery ethics)	51	5
British Medi-cal Journal	(Body dysmorphic disorder)	2	1
Plastic and re-constructive surgery Jour-nal	(Alienization)	1	1
Juniper Pub-lishers, key to the researchers	(Bichectomy)	1	1

Table 3.*Research strategy*

3.5 Others sources of informations

I was lucky enough to meet and talk to Dr. Harris on several occasions during my thesis who created the concept of Alienization. One of our exchanges is writing on the Annexe 2. He coined the term and his working with several Oxford doctors such as Dr Veale, who wrote several articles on the Body Dysmorphic Disorder that we used in this work.

3.6 Flow diagram

Step I - Database results

Searches were conducted in the PubMed, Cochrane Library; Plastic and reconstructive surgery Journal; Juniper Publishers; The British Medical Journal and Google scholar databases searching for articles published between November 2015 and January 2022. Zotero software was used to assist in the organisation of articles and the management of bibliographic references, which allowed the removal of duplicates in the different databases.

The literature search identified a total of 67 articles. After the removal of 8 duplicates, 59 articles remained, which after reading the titles and abstracts were reduced to 24, of which 9 were excluded for not meeting the objectives of this integrative systematic review.

Stage II - Articles reviewed

At this stage, 22 articles were reviewed to assess the quality and design of the study. Systematic reviews and meta-analyses retrieved during the search were used in the introduction and discussion sections.

Stage III - Articles for inclusion

Of these 22 articles, 10 were excluded for not presenting sufficient relevant data, considering the objectives of this work focused on Bichectomy. Finally, 12 studies were included in this integrative systematic review.

Thus, the table was prepared in which the names of the authors of each study, the year of publication, the main objective, the type of study, the parameters evaluated, the methods and the main results found.

The article selection process is illustrated in the flowchart (Figure 1)

Stage IV - Support items

There are 11 articles of support that were used in the introduction and discussion sections.

Among these articles, there are systematic reviews, meta-analyses, case reports, interviews retrieved during the search were used in the introduction and discussion sections.

Stage V - SJR table

The Scientific Journal Ranking (SJR) score was also used to evaluate the scientific influence of academic journals by publication date for each selected study.

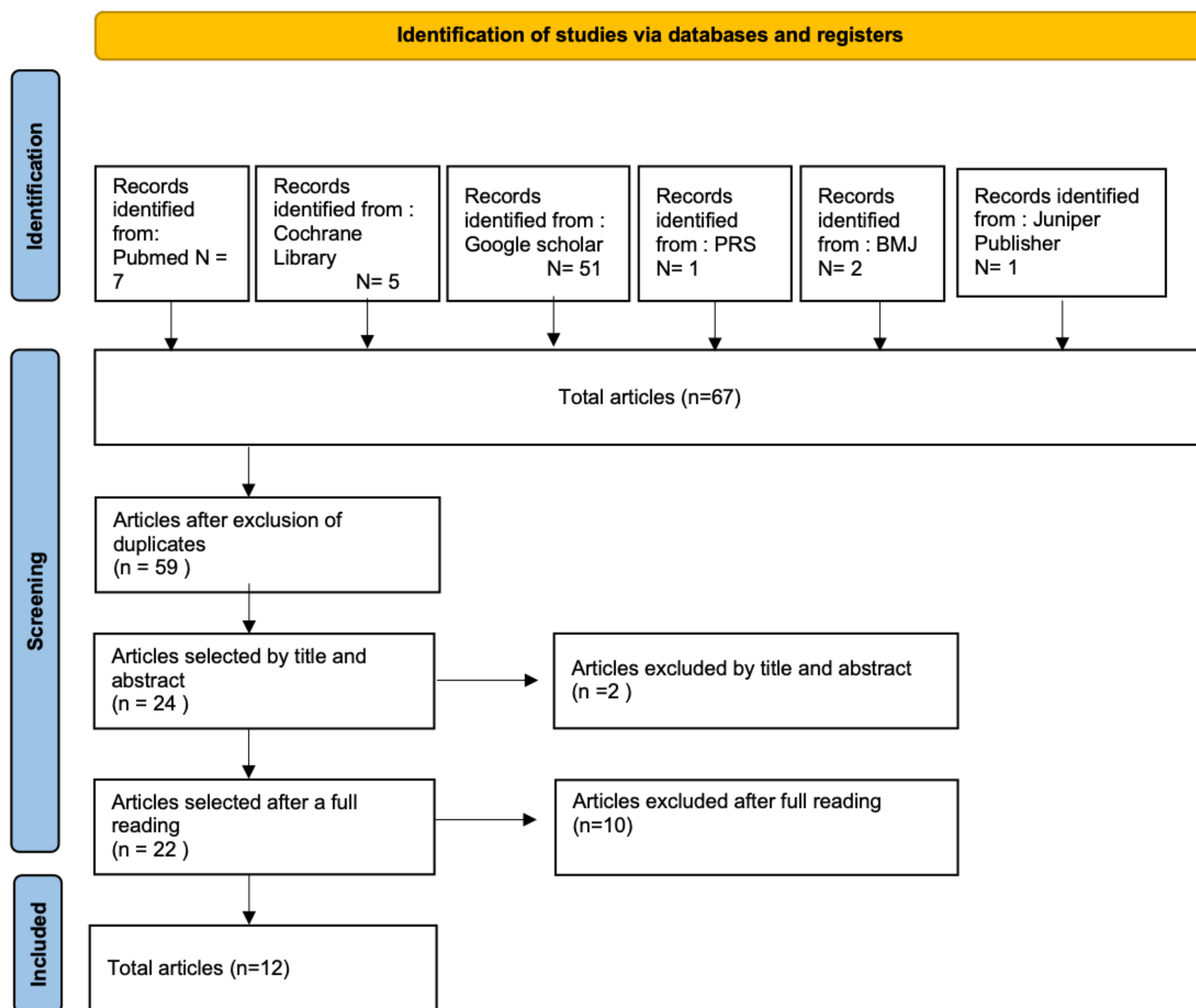
Journals/Ranking	Q1	Q2	Q3
Perm j		X	
Braz Dent J		X	
Indian J Psychiatry		X	
Oral Maxillofac Surg Clin N Am	X		
Plast Reconstr Surg (2 articles)	X		
J Oral Maxillofac Surg	X		
Clin Cosmet Investig Dermatol	X		
Facial Plast Surg (2 articles)	X		
BMJ	X		
J Biomed Sci	X		
Rev Gaúcha Odontol			X

Table 4. *SRJ quality rating of academic journals*

- JLasers Med Sci and Glob Open are not identified because the article is too recent (from 2022)
- Rev. Bras. Cir. Plást, Arq bras odontol and Int J Case Rep Images are not identified.

This table shows a majority of very good quality journals: 63% of articles for Q1, 27% of good articles for Q2 and 9% of average articles for Q3.

PRISMA 2020 flow diagram for new systematic reviews which included searches of databases and registers only



Como a minha investigação é uma revisão sistemática integrativa, tive de remover as revisões sistemáticas integrativas dos resultados sobre as diferentes fontes de dados científicos; isto reduziu significativamente os resultados.

As my research is an integrative systematic review, I had to remove the integrative systematic reviews from the results on the different scientific data sources; this significantly reduced the results.

Figure 1. *Flowchart of the search strategy used in this study, according to PRISMA.*

4. RESULTS

4.1 Characteristics of the included studies

The following information is included in this table of results: year of publication, authors' names, study design, title of the article. The table is organised according to the variables studied: Operating protocol/anatomy; Complications; Therapeutic purpose of bichectomy; Population and knowledge limitations; Evolution of beauty standards; Aesthetic purpose of bichectomy; Ethical issues raised by the procedure.

The results are illustrated in the following table.

Table 5. *Results.*

Articles (type of studies)/Variable	Protocol/anatomy/evolution tools	Post-operative and possible complications	Therapeutic of surgical acts of aim bichectomy	Population & Limitations of knowledge	Evolution of facial aesthetic beauty ideals and consequences
Evaluation of quality-of-life profile of patients submitted to bichectomy [3] REVIEW *Rafaela Scariot, et al. (2019)*	Patients with other dental problems or complaints to be treated are always oriented to other specialties before a bichectomy can be performed.	Out of all the factors considered for the surgical procedure, asymmetries, facial proportions, facial types and masseter muscle hypertrophy should be taken into consideration to avoid facial disharmony caused by the operation. However, risks and complications include paraesthesia, facial paralysis, local bleeding, infection and trauma to the parotid duct. Most of the participants in our study considered edema and trismus as a postoperative complication.	Bichectomy is considered a cosmetic surgery to improve facial harmony. This surgery can bring benefits such as thinning of the cheeks and consequent reduction of oral mucosal damage in case of biting, improvement of facial aesthetics and improvement of the patient's self-esteem and confidence. Although this surgical procedure is primarily sought for aesthetic reasons, the process has a great positive impact on quality of life, once the function improves cheek bite injury and should be considered a functional surgical procedure.	Thirty-six individuals of both sexes were assessed: 1 male and 35 females, with a median age of 31 (19-53) years. There was no association between age and post-surgical complications. Due to the limited number of studies, the post-operative impact on the lives of patients is still unknown. There was a prevalence of the female gender for proceeding the bichectomy surgery.	This is often found in studies that have assessed quality of life and oral health. The literature finds that women are more likely to be connected to self-care and seek health services and cosmetic procedures

Articles (type of studies)/Variable	Protocol/anatomy/evolution tools	Post-operative and possible complications	Therapeutic of surgical acts of aim bichectomy	Population & Limitations of knowledge	Evolution of facial aesthetic beauty ideals and consequences
Bichectomy: Achieving Aesthetic, Funcional and Psychological Results with A Simple Intraoral Surgical Procedure [14] REVIEW *Simone De Luccas, et al. (2017)*	This procedure alters the contour of the face by decreasing the volume, which reduces the weight that the tissues have to support and therefore the sagging. The procedure is performed under local intraoral anaesthesia. The incision, using scalpel blades or a laser beam, measuring between 1 and 1.5 cm between the vestibular fold, starting from the cusp of the third or second upper molar and towards the opening of the parotid canal, passes through the jugal mucosa, the buccinator muscle and the thin capsule of the buccal fat pad in the following order: the buccal mucosa, the buccinator muscle and the thin capsule of the buccal fat pad. After gently dividing the tissue, the fat pad is carefully pulled into the oral cavity	Good results may be seen after 15 days; excellent results after 45 days; and the ultimate result after 4 months. Removal of the buccal fat pad will re-accommodate the masseter and buccinator muscles, increasing friction, especially in patients suffering from bruxism. The main changes that may be observed after a bichectomy are: reduction in the depth of the nasolabial fold, appearance of fuller lips, noticeable shadow line under the cheek (blush effect); more defined cheekbones, better exposure of the teeth when smiling, more prominent eyes when smiling, more defined jawline, reduction in cheek volume.	Bichectomy is recommended for patients with chronic cheek bites. The main function of Bichat's fat pad is mechanical. Because of its location between the buccinator muscle and the masseter, it facilitates chewing and sucking in infants.	Examine the trismus. In most cases, very few complications are reported. Medical research is still establishing the medium- and long-term results of this surgery on patients who removed Bichat's fat pads when they were young, but the results so far are promising.	Bichectomy is indicated when there is excess volume in the middle third of the face (under the cheekbones/zygoma) giving it a plump or round look. Ideal candidates are men and women who desire a slimmer face in this area. Two structures need to be assessed prior to the procedure: the size of the zygomatic bone - if it is too small, a filling may be necessary a few months after the bichectomy; and the masseter muscle - enlarged masseter muscles become more evident after the fat pad is reduced. patients are satisfied with the final result, they are happier, more confident, feel sexier and have higher self-esteem. So it is not only a procedure that brings physical results, but also psychological ones.

	and cut taking care not to damage the fat pad fascia so that it can be removed in one piece. The fat pad capsule is not removed. The mucosa is sutured. Immediately after the procedure, a therapeutic laser is applied, followed by cryotherapy and a compression bandage to minimise the risk of oedema. Painkillers may be prescribed, as well as corticosteroids and antibiotics. Important structures around the incision, which are avoided with proper technique, are the ducts of the parotid gland, the facial vein, the facial artery and the facial nerves. The most frequent complications are: bleeding, oedema, ecchymosis, haematoma, subcutaneous emphysema and infections. This procedure is marked by oedema, so we must use all available management tools to control its occurrence.				

Articles (type of studies)/Variable	Protocol/anatomy/evolution tools	Post-operative and possible complications	Therapeutic of surgical acts of aim bichectomy	Population & Limitations of knowledge	Ethical questions of the acts
A novel preoperative ultrasonography protocol for prediction of bichectomy procedure [19] REVIEW *Filipe Jaeger, et al. (2017)*	The authors reinforce that the US is the best choice for BFP volume evaluation	According to the location of the buccal fat pad, it is susceptible to clinically significant pathologies such as lipoma, hernia and pseudohernia.	The location, however, also permits surgeons to cover many oral defects and lesions, including congenital palatal defects, many neoplastic lesions and bisphosphonate-related osteonecrosis.	Thirty-two patients, more than 18 years, with aesthetics and functional complaints were clinical evaluated by three experienced surgeons and previously selected for a bichectomy procedure. The study sample consisted of 29 females (ranged from 21 to 46; mean 26.7 years) and 3 males (ranged from 31 to 40; mean 36.0 years)	In cases of BFP asymmetry, the indication of surgery is not recommended to avoid the facial asymmetry after the procedure. Furthermore, when a small BFP is present the surgeon could discuss the case with the patient, diminishing unreal expectations.

Articles (type of studies)/Variable	Protocol/anatomy/evolution tools	Post-operative and possible complications	Population & Limitations of knowledge	Aesthetic evolution of surgical acts of bichectomy theses past years
Ultrasound-guided bichectomy: A case report of a novel approach [15] CASE REPORT *Alexandre Godinho, et al. (2020)*	The patient underwent local anaesthesia using the tumescent technique with 3% lidocaine (1:50,000). A vertical incision was made in the buccal (jugal) mucosa of the area approximately 20 mm posterior to the parotid papilla, through the buccinator muscle, with the No. 15 scalpel blade. Ultrasound performed during the procedure allows safe access and removal of the buccal extension with minimal risk to the patient. Ultrasound was useful in demonstrating the relationship between the buccal fat pad and adjacent structures and in detecting anatomical variations in its position, thus allowing a safer surgical procedure. In most cases, the excision of the BFP is achieved through an intraoral incision and has a low complication rate. During the process, ultrasound was used to localise the masseter and buccinator muscles, which are the reference muscles for the determination of the BFP, as well as to prevent possible hemorrhagic complications by using colorimetric Doppler to identify potential blood vessels in the vicinity of the incision site.	Some serious complications are reported in the literature, such as facial asymmetry, damage to the parotid gland, nerve damage and severe arterial bleeding. Complication rate of bichectomy surgery is about 8.45%. Among these complications, the most frequent are excessive resection, damage to the parotid gland, trismus, facial asymmetry, damage to the buccal and zygomatic branches of the facial nerve, and severe bleeding from the buccal and maxillary arteries.	A 25-year-old female patient was referred for bichectomy on her left cheek.	Lately, the surgical removal of the buccal extension of the BFP for aesthetic purposes has become very famous. This technique, referred to as bichectomy, promotes a reduction in the volume of the submalar region, emphasising the zygomatic prominence and allowing triangulation of the facial profile.

Articles (type of studies)/Variable	Protocol/anatomy/evolution tools	Post-operative and possible complications	Therapeutic of surgical acts of aim bichectomy	Evolution of facial aesthetic beauty ideals and consequences	Esthetic evolution of surgical acts of bichectomy theses past years
Complications associated with the bichectomy surgery [5] CASE REPORT *Leandro Kluppel, et al. (2018)*	The total volume of the buccal fat pad is approximately 9.6 ml, and its removal should be limited to 2/3 of this volume. Usually, 4-6 grams removed from both sides. The fat pad is made up of the main body and four extensions, which are the buccal, the pterygoid, the superficial and the deep temporal extensions. Considering encapsulation ligaments, and nutrition of the arteries, the fat pad can be divided into three lobes: anterior, intermediate, and posterior lobes. The buccal, pterygoid, pterygopalatine, and temporal extensions are derived from the posterior portion of the buccal fat pat lobe. Each lobe of the buccal fat is surrounded by a fibrous membrane, or capsule, attached by several certain ligaments and are nourished by various sources of arteries and vascular plexuses. It exists below the capsule of the lobe. This capsule separates the adipose lobe groups from each other,	The most important anatomical structures surrounding the buccal fat pad and that are frequently involved in surgical complications are the parotid gland duct, the facial nerve branches, the blood vessels and the muscular tissues The complications of bichectomy are not frequent, however, hematoma, infection, facial nerve and facial vessel injuries may occur. The therapies used in it include drug therapy, drainage, laser therapy and compresses. It can happen: parotid duct injury and salivary fluid retention, lesion, abscess, necrosis, sequelae and persistent suppuration.	In dentistry, the buccal fat pad clinical application can be removed or repositioned. The removal occurs to avoid intra-oral trauma, "nibbling", and the pedicle repositioning occurs for protection or to be used as a graft. It is covered by a thin fibrous capsule, which helps to separate it from the direct contact with the other tissues. The first function is, primarily, related to the sucking movements of new-borns and, subsequently, to chewing. Then, the buccal fat pad assists in the chewing movements and in speech. The buccal fat pad surgical intervention occurs to harmonize the facial contour, as this anatomical structure provides fullness to the cheek and is responsible for the facial contour of the face, in Dentistry, other clinical applications for	The partial removal of the buccal fat pad can reach delicate and symmetrical facial lines. A square facial contour can become ovoid, and, so, more harmonious	A precise anatomical knowledge of the face and the neck is obligated to avoid iatrogenesis, that can cause temporary and permanent sequelae The objective of this operation is to change the facial contour of the face, making it softer and more pleasant

	making them independent compartments thus, creating a natural space between the lobules. According to Stuzin and Matarasso, this capsule should be gently broken, with the aid of scissors or tweezers, during the buccal fat pat surgical intervention. The extension of the posterior lobe of the buccal fat is what defines the contours of the face and the fullness of the cheekbones. It corresponds to the lower part of the posterior lobe, just below the parotid canal, so its volume can influence the appearance of the face throughout the life of the individual. The deep temporal and pterygoium extensions are accessible above the zygomatic arch and appear to have little effect on the facial contour.		the buccal fat pad use are listed : -harmonizing the facial contour in cases of masseter hypertrophy; -repairing defects caused by tumour resections, -maxillary cysts and oro-antral communication post-traumatic; -defect correction reconstruction of the soft palate and the hard palate defects ; -use as an aesthetic filler to provide lip, premaxilla and paranasal volume; -in the malar region, use as a filler in cases of maxillary sinus membrane perforation.		

Articles (type of studies)/Variable	Population & Limitations of knowledge	Evolution of beauty standards	Ethical questions of the acts
Alienization [21] REVIEW *Steven Harris (2022)*	Today, only, we are beginning to acknowledge the true level of the physical damage and psychological impact on the patients. Also, we understand how this can impact us as doctors and the industry we live in.	The growing popularity of non-invasive procedures involving injectables, such as botulinum toxin type A and dermal fillers is creating a dangerous trend that takes the form of alienization. This concept assumes distortions of normal anatomy beyond what would be considered a normal range for the individual. Average faces is a preference for adults and children that comes from a general survival mechanism aimed at maximising our chances of reproducing. The problem for practitioners is that they may lack artistic sense or, in more severe cases, have an underlying perceptual disturbance as part of an image disorder such as body dysmorphia. Studies have shown that body dysmorphic disorder is quite common among cosmetic dermatology patients (8% to 15%) and, even more common among cosmetic practitioners (16%). Other impressionable people, such as the very young, may imitate their role models who have become alienated, including celebrities and influencers, particularly on social media.	Social media, tiktok, facebook, snapchat and especially Instagram, has become a source of inspiration for edited or filtered selfies and unnatural aesthetic results: it is a constant stimulation of images that acts as a 'brainwashing'. For practitioners, several factors seem to be problematic: a lack of artistry, a misunderstanding of what is the normal anatomy, and greed, involving the manufacturers of our products. The concept of alienization is complex and multifactorial. As practitioners, we have a duty of care to first, do no harm; therefore, it is our duty to bring alienization to an end and return to the healthy practice of aesthetic medicine involving natural looking results (normalization). To do so, we need to fully understand each of the underlying causes of alienization so that we can address them to the good psychological help.

Articles (type of studies)/Variable	Population & Limitations of knowledge	Evolution of beauty standards	Ethical questions of the acts
Microfocused Ultrasound with Visualization Face Slimming: Preliminary Results in Four Women (16) CASE SERIES *Talitha Possagno, et al. (2021)*	Four women between 29 and 36 years Non-invasive procedures, such as MFU-V, are the preferred treatments of the middle third of the ageing face. In our cases, despite the lack of a control group or another procedure for comparison, all our subjects indicated improvement in the area.	Facial appearance performs an important social function in the modern world, and modifications of facial shape due to ageing and loss of the connective tissue scaffold impairs self-esteem and competitiveness. Thus, the search for improvements in facial harmony is increasing worldwide. One of the standards of beauty sought by women is the triangle of Yarbus, which passes through both eyes with the apex located in the chin. This triangle however tends to reverse over time due to bone resorption, fat loss, and loss of skin elasticity.	Self-esteem is often affected during treatment involving facial appearance, as it is directly related to our perception of the world. It is important to understand the issues involved in having an "attractive" appearance in our society and the sacrifices that some patients are willing to make to achieve this.

Articles (type of studies)/Variable	Population & Limitations of knowledge	Evolution of beauty standards	Ethical questions of the acts
Understanding and treating body dysmorphic disorder [22] REVIEW *Aoife Rajyaluxmi Singh, et al. (2019)*	There is insufficient research comparing the clinical features of BDD, across different populations and cultures. The majority of current research is from North America and Western Europe.	Preoccupation with one's appearance is recognised and accepted in many cultures as an aspect of normal human behaviour. Yet, if these concerns are excessive, very distressful, or impact on a person's quality of life, they may suffer from BDD. BDD can be influenced by cultural expectations about beauty. For example, in Japanese case reports, the eyelids are the focus, which is a rare physical complaint in Western culture. Similarly, the muscle dysmorphia variant of BDD appears to be more common in occidental societies compared to oriental societies.	BDD remains under-diagnosed today due to a variety of conditions, which means that patients are unlikely to receive the treatment they need and continue to suffer.

Articles (type of studies)/Variable	Population & Limitations of knowledge	Evolution of beauty standards	Ethical questions of the acts
Body dysmorphic disorder [23] REVIEW *David Veale, et al. (2015)*	Prevalence of 2% in the general population, (more common than schizophrenia or anorexia nervosa) -Equally in both sexes, can start at adolescence (more grave case) than in adult age.	BDD occurs in adults but can also occur in adolescence in a more severe form. Compared to adults, adolescents with body dysmorphic disorder have a higher lifetime suicide rate and more delusional beliefs. People with body dysmorphic disorder commonly have cosmetic surgery in the expectation of improving the appearance of their self-perceived defect(s). Dissatisfaction with the cosmetic practitioner is frequent and repeated procedures are inappropriate, not least because the diagnosis of body dysmorphic disorder may not be made, which can lead to litigation. Patients can and do recover from body dysmorphic disorder, so a history of body dysmorphic disorder is not a contraindication to aesthetic intervention, but an indication for caution.	The key diagnostic criteria for Body Dysmorphic Disorder is a preoccupation with a perceived defect that is in the forefront of the mind for at least one hour per day, but usually several hours per day. For the diagnosis to be correct, the perceived defect must cause a significant amount of distress or interference with everyday life. At some point during the course of the disorder, the person is likely to have engaged in repetitive behaviours - for instance, looking in mirrors, checking with fingers, picking at the skin - or mental acts - for instance, brooding, constantly comparing the characteristic of the perceived defect with the same characteristic in other people - or acts of imagination.

Articles (type of studies)/Variable	Post-operative and possible complications	Evolution of facial aesthetic beauty ideals and consequences	Ethical questions of the acts
Avoiding the Unhappy Patient by Building Rapport in the Internet Age [18] REVIEW *Eugene Kern, et al. (2019)*	Unhappy people are able to take revenge through : -verbal abuse -Internet slander -Legal attack -Physical attacks, including murder Systematic use of a screening questionnaire may help to detect BDD patients preoperatively. Lastly, practice relationship building - (1) active listening, (2) positive body language and (3) candour - as a positive interaction is crucial to patient and doctor satisfaction.	Modern technological trends have impacted the field of plastic surgery more profoundly than any other medical field, with surgery being performed by more people and at a much younger age than ever in history. These technological advances have generated an unprecedented high demand for cosmetic procedures, but contemporary tools (particularly the Internet and smartphones) have complicated the doctor-patient relationship by seemingly increasing the demands for perfection. In addition, selfies and smartphone photos distort the image of the patient, who often feels self-conscious about the distortion of their appearance. Nowadays, access to information seems unlimited, even at kindergarten age, as young people are exposed to appearance enhancement procedures through the Internet, television and social media sites at an earlier age.	This interview should include routine use of a body dysmorphic disorder screening questionnaire since a lot of these patients are undiagnosed prior to surgery and few, if any, are ever satisfied with even an excellent surgical result. These patients need diagnosis and psychological intervention—not surgery. Three decades of ground breaking research into BDD was initiated by psychiatrist Katharine Phillips, MD, who published articles, books and a specific BDD screening questionnaire.8-12 Lekakis et al1 3 used a modified short questionnaire with seven items. They reported a sensitivity of 89.6% and a specificity of 81.4%; of course, "borderline" cases of BDD or patients suspected of deliberate deception should be referred for further assessment by a mental health professional.

Articles (type of studies)/Variable	Aesthetic evolution of surgical acts of bichectomy theses past years	Ethical questions of the acts
Bichectomy procedure: a discussion on the ethical and legal aspects in odontology [20] REVIEW *Victor Jacometti, et al. (2017)*	The bichectomy has, these past years gained popularity in the field of dentistry and has begun to widely practice procedures primarily with aesthetic requirements, raising questions and uncertainties regarding its ethical and legal aspects.	The volume of the face may also have other causes unrelated to the above structures, so anatomical and surgical knowledge and good diagnosis are required for good execution. This surgery is currently gaining ground, mainly due to the relentless pursuit of ideal aesthetics. The dentistry area starts practicing this operation because the jugal area corresponds to the head and neck region and is in close contact with the oral cavity. And this interface of procedures performed mostly by doctors with areas corresponding to the dental surgeon`s work generates doubts and controversies about the legitimacy of the act.

Articles (type of studies)/Variable	Protocol/anatomy/evolution tools	Evolution of facial aesthetic beauty ideals and consequences
Bichectomy or Bichatectomy - A Small and Simple Intraoral Surgical Procedure with Great Facial Results [10] REVIEW *Eber Luis de Lima Stevao, et al. (2015)*	The Bichat's balls body of the cheek has six extensions distributed over the masseteric, superficial temporal, deep temporal, pterygomandibular, sphenopalatine and inferior orbital areas. A Bichectomy, also known as a Bichatectomy, a more precise term, or simply cheek reduction surgery, is a surgical procedure to remove a structure called Bichat fat pad.	The definition of what is "beautiful" has subjective and cultural characteristics. However, television, newspapers, social media and the arts have oriented collective thinking towards a beauty standard. The bichectomy also improve facial appearance, clearer cheeks resulting in more prominent zygomatic bone, Increase self-esteem and help to feel more confident.

5. DISCUSSION

5.1 Bichat ball

5.1.1 Historical context

The researcher Heister was the first author to describe the oral fat pad as a glandular structure in 1732. However, it was not until 1802 that Marie-François Xavier Bichat described this anatomical structure as an adipose tissue, named Bichat's Ball. Bichat's ball, also known as "corpus adiposum buccae", "cheek fat", "syssarcosis manducatorium" or "buccal fat pad" is a fatty formation of the maxillofacial mass.

Like most of the adipose tissue of the face, it is made up solely of white fat, unlike visceral fat, which contains brown fat cells. It is located in the so-called masticatory space with an average weight of 9.3 grams and an average volume of 9.6 ml, with little variation between the right and left sides (about 1.5 grams). [(5)]

5.1.2 Anatomy

The Bichat Ball is located in the manducatory space and has a pyramidal shape [(6)]. It is in front of the tendon of the temporal muscle and the coronoid process (anterior end of the ascending branch of the mandibular bone). Stensen's canal runs along the lateral surface of the fat body before penetrating it and then crosses the buccinator muscle before entering the oral cavity. [(7)]

The manducatory cavity is limited by different structures: [(8)] externally, and from top to bottom by the temporal fascia, the zygomatic process and the masseteric fascia, Medial to the temporal bone fossa, the inter-pterygoid fascia, posteriorly, by the inter-mandibular parotid fascia stretched from the posterior edge of the masseteric fascia to the maxillary sphenoid ligament.

Anteriorly, the compartment is closed in its upper half by the posterior surface of the malar, in its lower half by the anterior expansion of the masseteric fascia to the buccinator fascia repressed by the anteroinferior pole of Bichat's ball and by the posterior surface of the maxillary tuberosity. [(7)] Between the fixed walls of the osteo aponeurotic lodges and the dynamic elements represented by the ascending ramus of the mandible and the masticatory muscles, there are sliding spaces called syssarcoses which contain a cellulo-adipose tissue called the Bichat ball.

The manducatory syssarcoses include the temporal fascia, the temporalis muscle, and Bichat's ball. [8]

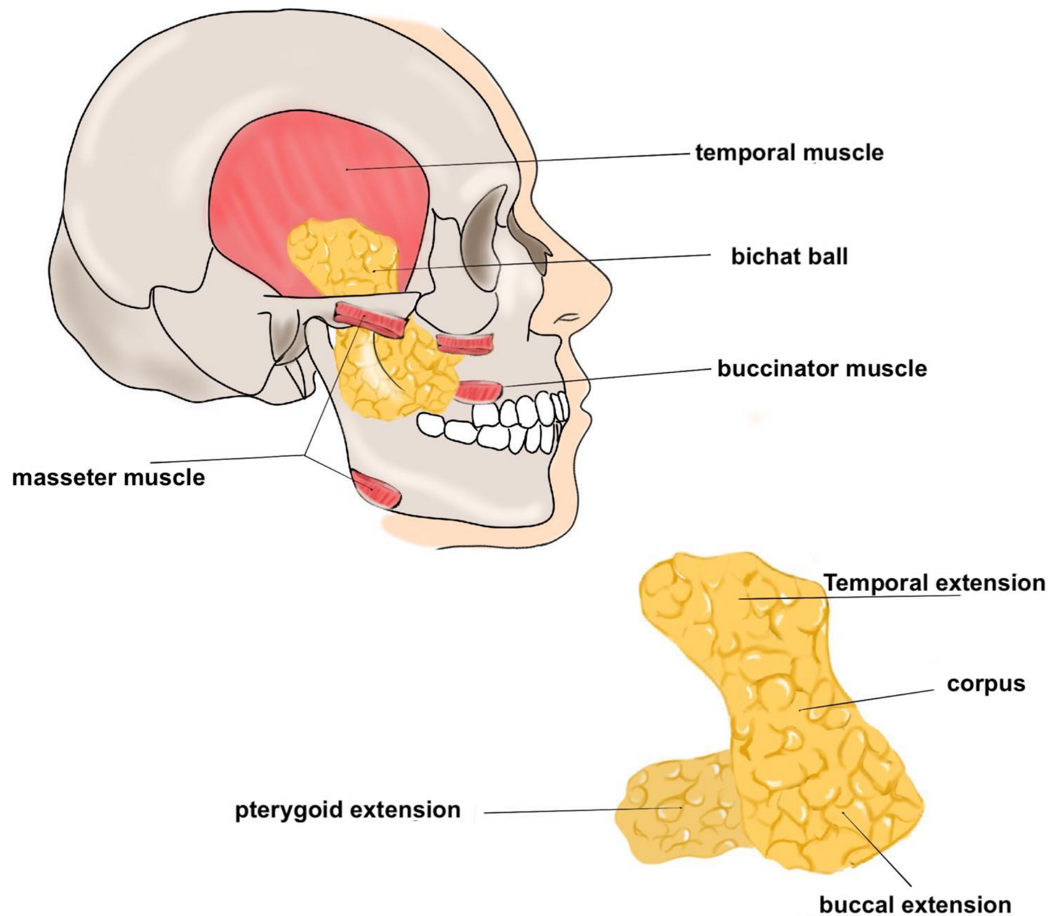


Figure 2. *Anatomy of the Bichat ball in relation to adjacent structures.*

The Bichat's ball is composed of a body of main fatty masses and extensions. Some describe it as having three lobes and four extensions, while others describe it as having a central body and six extensions. [9,10]

The whole is surrounded by a clean connective fascia independent of the deep fascias of the face, free of adhesion except at the level of the inferior orbital fissure and the spheno-palatine hole. [8]

The buccal fat pad consists of a main body and four extensions, namely the buccal extension, the pterygoid extension, the superficial temporal extension and the deep temporal extension. [10] Considering encapsulation, ligaments and arterial nutrition, the buccal fat pad can be divided into three lobes according to Zhang, namely the anterior lobe, the intermediate lobe and the posterior lobe. The buccal, pterygoid, pterygopalatine and temporal extensions are derived from the posterior lobe of the buccal fat pad. [10]

5.1.3 Vascularization and Innervation

Each lobe of the buccal fat pad is surrounded by a fibrous membrane, or capsule, attached by certain ligaments and supplied by different sources of arteries, and a vascular plexus exists under the lobe capsule. [10]

In the periphery, in the form of a subcapsular vascular plexus, it depends on the facial artery, the transverse artery of the face and the superficial temporal artery, In depth, the Bichat's Ball is mainly vascularized by the buccal artery, a branch of the internal maxillary artery. [11]

The venous drainage is done by two ways:

- The maxillary vein of the external jugular system.
- The deep facial vein of the internal jugular system.

The Bichat ball is innervated by the buccal and zygomatic branches of the facial nerve, and internally by the buccal nerve. [11]

5.1.4 Function

Bichat's ball has a mechanical function, facilitating muscle movements, such as chewing and sucking. Based on his autopsy studies, several structures were introduced and named after him, such as the pterygo-palatal fossa, originally called Bichat's fossa, and Bichat's protuberance, popularly called Bichat's ball, which refers to the oral fat pad. [10] Its clinical application is in the medical and dental fields.

Depending on the location of the buccal fat pad, it is susceptible to clinically significant pathologies such as lipoma, hernia and pseudo-hernia. [10]

Localisation, however, also allows surgeons to cover several oral defects and lesions, including congenital palatal defects, many neoplastic lesions and bisphosphonate-related osteonecrosis.

The Bichat ball is covered by a thin fibrous capsule, which isolates it from direct contact with surrounding tissues, and its development is mainly related to the sucking movements of new-borns and, subsequently, to chewing. Therefore, the buccal fat pad can be considered as a sliding structure that assists chewing and speaking movements. [10]

In dentistry, many other clinical applications for the use of the buccal fat pad are listed in the literature such as: facial contour harmonization in masseter hypertrophy; repair of defects caused by tumour resections, maxillary cysts and oro-antral communication; [12] correction of post-traumatic defects; reconstruction of soft and hard palate defects; use as an aesthetic filler to provide volume to the lips, premaxilla and paranasal; in the malar region; [13] use as a filler in case of maxillary sinus membrane perforation. [10]

5.2 Bichectomy

5.2.1 Historical context

Bichectomy or bichatectomy, the more correct term, or simply "cheek surgery" in common parlance, is a surgical procedure that involves the removal of a structure known as Bichat's ball.[10]

5.2.2 Precautions

It is important to follow certain precautions before performing a bichectomy. As with any surgical procedure, complications can arise if these precautions are not followed. Patients with dental pain (periodontal or prosthetic problems, orofacial pain) should always be referred to other dental specialties before the bichectomy can be performed. [10] This is to avoid the risk of bacterial or fungal contamination.

Of all the factors assessed for surgery, asymmetries, facial proportions, facial types, zygomatic bone size [12] and masseter muscle hypertrophy should be taken into account to avoid iatrogenic facial disharmony [3,10]
For this purpose, there are several auxiliary diagnostic media that have the role of assessing the amount of fatty tissue in the Bichat ball. They also help to minimize operative and post operative complications.

Ultrasound is useful in determining the relationship between the Bichat ball and adjacent structures, which allows for a safer surgical procedure. It detects anatomical variations in the position of the fat pad. (14)

During the procedure, ultrasound-guided (USG) locates the masseter and buccinator muscles, which are reference muscles for the determination of the Bichat ball. In order to avoid possible bleeding complications, colorimetric Doppler can be used to identify potential blood vessels near the incision site. (15)

5.2.3 Protocol

As with any operation, there are nuances in the execution of the protocol. Here is a protocol (not unique) of the bichectomy operation. (14)
The procedure takes about 15 to 20 minutes, from local anesthetic to suturing.

- 1) Local anesthesia
- 2) The Bichat fat pad is accessed through a small incision, maximum 5 mm long. Step 1: Identify the parotid duct.
  Step 2: Identify the intraoral vein.
  Step 3: Draw a line perpendicular to the middle of the distance between the canal and the gingival-buccal sulcus; this line starts at the vein and ends at the second to third molar measuring approximately 2 cm.
  Step 4: Ensure that this line (which will be the incision line) forms a "T" with the vein, giving the precise location of the incised site. (16)
- 3) Using a long, thin blocking forceps inserted deep into the area, some of the fat is squeezed out and gently removed.
- 4) Gradually, the entire fat pad is removed using another hemostat until the pedicle is visualized.
- 5) At this stage, the pedicle can be cut and the fat pad detached.
  6) In addition, a small metal suction nozzle can be inserted into the area (pocket) to clean
  up any grease left behind.
- 7) If the bichat ball fascia is not ruptured, it is possible to remove the entire structure in one piece.
- 8) A simple suture finishes the operation (in most cases).

Results are visible after 4 to 6 months, when the soft tissue swelling is definitely gone [10] Other authors say that results start to appear 15 to 20 days after the operation and total remodelling at 90 days or 3 months. [5]

5.2.4 Complications

Like any operation, there is a risk of complications. It can be operative or post operative. There is a great risk in performing the operation in cases where the buccal fat pad is positioned deep in the masseteric area in close relation to the branches of the facial vein and the transverse facial artery. Other serious complications are reported in the literature, such as facial asymmetry, damage to the parotid gland or duct leading to retention of salivary fluid, [5] nerve damage and severe arterial bleeding. [10]

Removal of the buccal fat pad will re-accommodate the masseter and buccinator muscles, thus increasing friction, especially in patients with bruxism. However, a prescription for muscle relaxants in the first few days postoperatively is sufficient to relieve the friction. [14]

In some clinical cases, tissue necrosis below the epithelium has been reported as a result of electrosurgical cutting that has charred one of the dermal layers or contaminated the site. [5] Abscessus, sequelae and persistent suppurations, as well as dermal lesions and oedema have also been reported. [5]

Although complications of bichectomy are infrequent, the postoperative risks are still very real. This can be verified in the literature, which shows that the complication rate reported during bichectomy surgery is approximately 8.45%. Among these complications, the most frequent are excessive resection, injury to the parotid gland, trismus, facial asymmetry, injury to the buccal and zygomatic branches of the facial nerve, and severe haemorrhage of the oral and maxillary arteries. [15]

Similarly, haematomas, infections, facial nerve and facial vessel damage can occur. The therapies involved in these cases are drug treatment, drainage, laser therapy and compresses. [5]

A final complication to consider is that of patients who are unhappy with their surgical results. Some of them are able to retaliate by: verbal violence, slander on the Internet, legal attack, physical attacks, including murder. [18]

This is a complication to be considered particularly in the case of bichectomy because the results depend a lot on the practitioner (execution, method used, protocol etc...), the quantity of fatty tissue extracted, and the anatomy of the patient.

In addition, the patient's expectations may be unrealistic or not in line with reality. It is the role of the practitioner to always communicate the reality of the procedure and the results to avoid disproportionate reactions. But nevertheless, the risk of dissatisfaction even if the operation is correctly performed can be rightly considered as a complication.

5.2.5 Motivation of the act

The most common motivation for performing a bichectomy is to refine the facial contour. (3,10,14-16,19,20) Thus, a round face and larger cheeks are characterised as "less aesthetic" in the majority of clinical cases studied. Bichectomy is primarily a therapeutic operation and avoids frequent biting in some patients with a particularly large jugal mucosa that disturbs the occlusion and creates real discomfort. (3,14)
In dentistry, many other clinical applications for the use of the buccal fat pad are listed in the literature, such as: reconstruction of soft and hard palate defects; harmonisation of facial contour in cases of masseter hypertrophy; correction of post-traumatic defects; repair of defects caused by tumour resections, maxillary cysts and oro-antral communication; use as an aesthetic filler to provide volume to the lips, premaxilla and paranasals; in the malar region; use as a filler in cases of maxillary sinus membrane perforation. (5) But today it is practised almost exclusively for aesthetic purposes. (3)

It is interesting to understand how a surgical act with a therapeutic aim has been removed from an aesthetic aim over time. We can guess that the properties of this act question our definition of aestheticism today. (19,20-21)

Various changes can be appreciated after a bichectomy among which we can mention: a reduction in the depth of the nasolabial fold, the appearance of fuller lips, the noticeable shadow line under the cheek (blush effect); more defined cheekbones, and a better exposure of the teeth when smiling, more prominent eyes when smiling, and a more defined jaw line. And finally, of course, a reduction in the volume of the cheeks. (14) These facial changes are at the heart of the motivations that lead to the bichectomy operation. (14,16,21)

5.3 Evolution of beauty standards

Facial appearance plays an important social role in our society, and changes in facial shape due to ageing and/or the environment (stress, sun, etc.) lead to collagen loss. This consequence is detrimental to self-esteem and competitiveness according to many researches. [16] This is why the search for improvements in facial harmony has been on the rise in the western world over the last 6 years and the number of bichectomy has exploded like never before in its history. [5,15,20] Physical appearance has become a primary and defining aspect of our lives. This can be explained by the proliferation of social networks and dating applications that place selfies at the heart of their content. [14,16,21]

Technological advances in recent years have created an unprecedented demand for cosmetic procedures. In addition, other new technologies such as the Internet and social networks have complicated the doctor-patient relationship while increasing the demands for perfection.[2] In addition, selfies and smartphones photos distort the image of the patient, who often feels self- conscious or unhappy with his or her appearance when it is au naturel. [1,18] The filters available on smartphones compromise the image of the individual, creating a new desire to get closer to the modified image of the filter that meets the current beauty standards. The adolescent population may be motivated to emulate their role models who have become *alienated*, particularly celebrities and influencers. [21]

Western beauty standards follow this fashion of alienization which we will develop in the next section. This means that maxillofacial surgery practices also follow the current fashions and trends of the aesthetic market. [21]

Modern technological trends have affected the medical practice of cosmetic and maxillofacial surgery more profoundly than any other area of medicine, with surgery being performed in greater numbers and at younger ages than ever before. [18] This demonstrates that surgery is no longer performed to alleviate the signs of old age and cultivate youth, but to reshape towards “perfection”. [2] Bichectomy has become one of the ways to get there.

5.3.1 Alienization

“Alienization refers to the distortion of features outside the normal range of an individual, so that it appears alien to that particular person” writes Dr. Steven Harris, the renowned plastic surgeon who coined the term. The definition of what is 'beautiful' is quite subjective and

cultural. However, television, the press, social networks etc. have influenced the collective mentality to a standard of beauty. [10]

To describe it another way, alienization is the new occidental beauty standard today; it is defined by very easily identifiable features that add up to an alien image. All of these features can be achieved through invasive or non-invasive cosmetic and maxillofacial surgery procedures. Here is a table that brings together the main characteristics of alienization and their corresponding surgical procedures based on the work of Dr Harris:

Features	**Procedures**	**Invasive or non-invasive**
Almond-shaped eyes, winged eyebrow	Fox-eyes lift	non-invasive
Zygomatic prominence, sunken cheek	**Bichectomy**	invasive
Contour of the mandible sharped	Hyaluronic acid injection (Jawline contouring)	non-invasive
Fine nose, widened nasal bridge	Rhinoplasty/ hyaluronic acid modulation	invasive/ non-invasive
"Russian lips" or "Doll lips"	Hyaluronic acid injection (lip filler)	non-invasive
Pointy chins	Hyaluronic acid injection	non-invasive

Table 6. *Table of the main characteristics of alienization and their corresponding surgical procedures.*

Alienization is the exaggeration of these features as a result of cosmetic/maxillofacial surgery. Dr. Harris writes that "some people naturally have certain features in the simulation, but the problem is to create in those who don't the same features and make everyone look the same." This results in what I would like to call "the uniformization of beauty". This phenomenon can be observed on social networks, the impression that these celebrities all look the same is not unfounded. On the contrary, it is based on our brain's assimilation of the facial features of these individuals as "similar". [21]

It is clear that the trend is at the heart of the concept of alienization. The need to be approved by others and to be part of a group on both the practitioner and patient sides is a

central issue. Practitioners may identify with a particular aesthetic, says Dr Harris in our interview, "Even if they don't agree with it, in order to gain approval from their colleagues and to be part of their 'group'" (Annex 3).

Alienization is complex and multi-factorial, some of its components are lack of artistry, misunderstanding of anatomy, and greed, which is part of a larger picture involving product manufacturers. We are only beginning to understand the true extent of the physical damage and psychological impact on our patients, and how it affects us as practitioners and our industry as a whole.

The invasiveness of these procedures, as with bichectomy, is a parameter to be taken into account in the long term. That said, invasiveness does not necessarily mean finality. Indeed, some studies describe Bichat balls as sensitive to fluctuations in the individual's weight. Even after the removal of a portion of the Bichat ball in bichectomy, it is important to maintain a healthy lifestyle and eating habits or risk regaining fat tissue in this area, just like any other part of the human body containing a reserve of white fat cells. But other studies warn about the long-term results. [17]

PATIENT CONSENT: *The patient provided written content for the use of her image.*

Figure 3. *Alienization demonstrating commonly observed distortions, including arched eyebrows (fox eyes), the disappearing jugo-palpebral fold (hyaluronic acid injection to reduce dark circles), hollow cheeks (bichectomy) and over-projected and angular jaws (square jaw), with a pointed chin, very thin nasal bridge and exaggeratedly upturned nasal tip (trumpet nose), overstuffed lips or vertically over-projected and flattened lips ('Russian' lips, 'doll' lips). (The second image was altered using The BeautyPlus application.)*

5.3.2 Body dysmorphic disorder

One of the triggers for the procedures that lead to alienization is social networking according to Dr Harris and Dr Veale. This is not the cause, but a trigger for BDD (Body dysmorphic disorder). Dysmorphophobia was first described over 100 years ago by Italian psychiatrist Enrico Morselli. It comes from the Greek "dysmorphia" which refers to ugliness. Even today, studies show that it is under-diagnosed. (22) Failure to recognise BDD can lead to poor physical and psychiatric outcomes for patients and, without treatment, BDD appears to have a chronic course, which in the worst cases can lead to suicide. (22)

The World Health Organization's most recent International Classification of Diseases (ICD- 11) states that BDD is characterized by: "A persistent preoccupation with one or more physical imperfections or blemishes that are not or only minimally noticed by others." [22] The individual has engaged in repetitive behaviours (looking at their reflection in a mirror, scratching their skin and seeking reassurance etc.) or mental acts like comparing their appearance to others. The main feelings of the BDD patient are shame and rejection. [21]

The constant comparison leads to a low level of satisfaction, which makes this kind of patient very complex to treat. Many go undiagnosed and undergo several unsuccessful operations without satisfaction. This frustration can spill over to the practitioner or to the patient himself, which in the latter case is a greater risk. Dr Veale describes social networking as a "trigger" for BDD but not a cause. [23] This can perhaps be explained by the very basis of the functioning of social networks, which act as a global platform of multiple community agency. The continuous bombardment of information and data on these platforms acts on our perception of ourselves. [21] Nevertheless, a history of BDD is not a contraindication to aesthetic intervention, but an indication for caution. [23]

5.4 Ethics

5.4.1 Dentist's challenge

The practitioner's role must always be one of caring for the patient in order to fulfil the duty of care. He obviously has a duty to make his patient aware of the risks, complications and other treatment options. This transparency about the treatment carried out and its stages is in line with the Hypocrate's oath, to which every doctor is subject (Annex 1).

But beyond the duty of transparency, the practitioner himself must be aware of the evolution of the demands and the new fashions in terms of current aesthetics. [21] This represents a challenge, since he can sometimes be subjected to the pressure of a request but must be able to refuse it if it does not fall within the field of care, but that of aesthetics. Indeed, the care represents an emergency that the doctor must at all costs accept to treat because it is his duty like it is written in the oath of Hippocrates (Annex 1). On the other hand, treatments with a purely aesthetic aim do not represent an emergency and can therefore be refused if they harm or could

harm the patient in the future. [21] The practitioner is not there to meet the demands of the market like a trader, but to care ethically and with the greatest possible care for a patient.

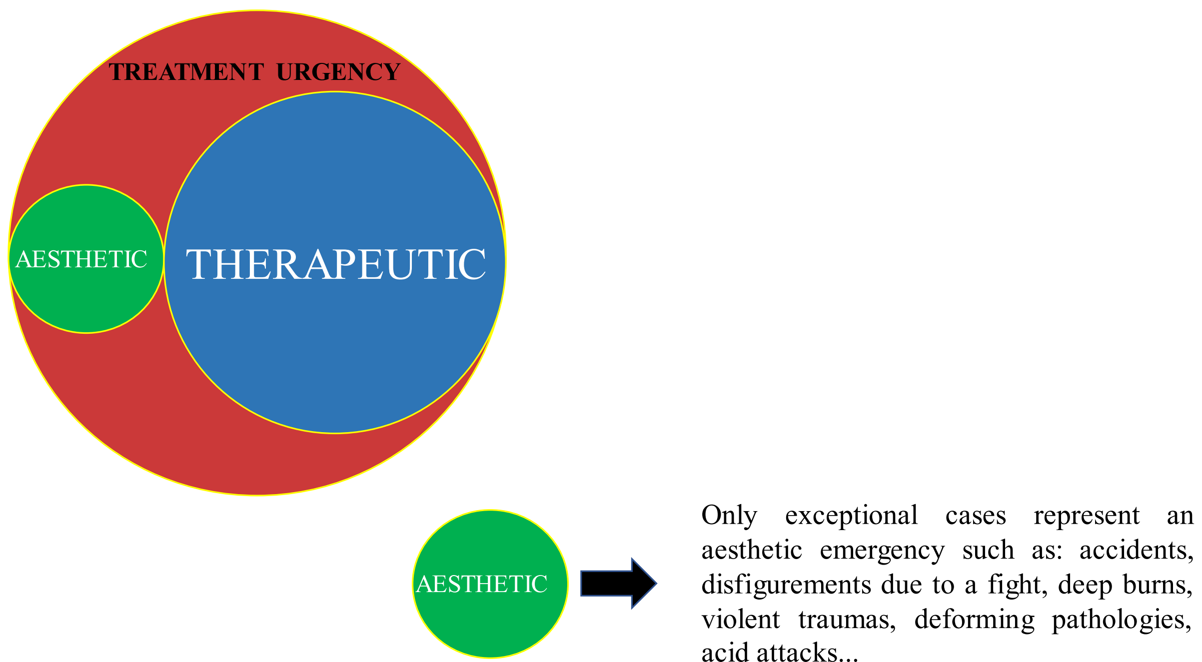


Figure 4. *Representation of the urgency of treatments in relation to the nature of the therapeutic or aesthetic care.*

Prevention/awareness raising on alienization would enable many practitioners to be aware of the different types of patients who come to their practice and thus to guide them correctly with the BDD test. The systematic use of a BDD screening questionnaire can help to identify these patients before any intervention. Finally, practice building rapport through active listening, body language and candour. Creating a positive rapport is fundamental to satisfying the patient and therefore the physician. [18] All first consultations for aesthetic medicine should pass the BDD test as patients are not diagnosed before surgery which leads to dissatisfaction even if the surgical results are excellent. These patients need proper diagnosis and psychological help, more than surgery in most cases. [18]

5.4.2 The role of legislation

From an ethical point of view, there are several points to be made regarding the growth of bichectomy operations. Access to training courses that enable the skills necessary to perform bichectomy are restricted to maxillofacial surgeons. However, other fee-based training centres have opened to allow access to this type of operation by the non-maxillofacial surgery community. This increase in type and kind of training makes it difficult for the practitioner to choose.

It is also more difficult on the patient's side, as there is more choice, to find an experienced or specialist practitioner. The risk is the under-training and legitimacy of the practitioner.

What remains to be defined is the extent to which a training course is recognised as competent, and training given the offer in the market today, the duration of the courses, the experience of the trainers etc...

Depending on the laws and legislations of each country, the dentist has the power to act in the areas in which he/she has trained after his/her initial training. (20) However, in Brazil, the Federal Council of Odontology, until now, does not recognise that it is possible for a dental surgeon to act for exclusively aesthetic purposes. The law does not authorise the dental professional to indicate and/or perform invasive procedures for purely aesthetic purposes, as these are the private remit of doctors. (20)

This is exactly the case with bichectomy and its controversy, as Brazil is the country with the most bichectomies performed in the last 6 years, with figures that have tripled since 2015. (3) This puts us in a paradoxical situation.

Limitations

Several articles have shown limitations due to the lack of long-term studies of the consequences of bichectomy. Both from a physiological and psychological point of view. The same is true for alienization. We are still at the beginning of this research and the coming years will be promising in terms of new content. Therefore, I had to diversify the sources of data a lot due to a lack of articles corresponding to the subject. It was not possible in the current data sources to find the exact moment when it is considered that the bichectomy was performed for purely aesthetic purposes. What the literature tells us is that this phenomenon is very recent, starting approximately 6 years ago. (3)

6. CONCLUSION

The increase in the number of bichectomy in recent years is due to a phenomenon, which is alienization. Alienization is a term that conceptualizes all invasive and non-invasive surgical modifications performed by an individual in order to meet well-defined beauty criteria. [21] This practice has developed with the popularisation of surgeries performed by stars or digital influencers on social networks. [21]

Bichectomy allows the face to be refined and thus meet the new Occidental beauty standards. [3,10,14-16,19,20] Patients who wish to undergo this operation have no other objective than to meet an aesthetic demand. As a result, this operation has changed from a therapeutic operation to a cosmetic one, in order to meet the fashion of the moment. [22]

The first role of the dentist or maxillofacial surgeon in relation to this type of procedure is prevention on both sides (Annex 3). The part of practitioners and the part of patients, about what alienization is and what BDD is. Systematically establishing a BDD test before an aesthetic consultation would lead to a better dissociation of patients to be treated or redirected to psychology [23]. Recognising an alienized patient seeking other surgical procedures (in our case, bichectomy) allows the practitioner to profile the patient and educate and counsel them on what alienization is. Thus, we can be sure to respond correctly to the patient's expectations. [21]

As the demand for bichectomy has increased [5,15,20], many non-maxillofacial surgery professionals have also started to perform this operation to meet the growing demand. But there is a financial interest in the popularity of this operation: on the side of the training centres and the practitioners who will be able to practise even if they can be under-trained and not very legitimate because they will be able to invoice the operation at the same price as a specialist. This raises ethical questions:

Should a new medical ethic be reformulated or adapted to changes in our society and due to the evolution of the practices?

This is a current and complex question that requires a real search for an answer. Both from the Ministry of Health and the State, and from the practitioners (Unions and representatives of the dental surgeons' association for example). This study must include, to be complete, other fields such as psychology, sociology, statistics and neurosciences.

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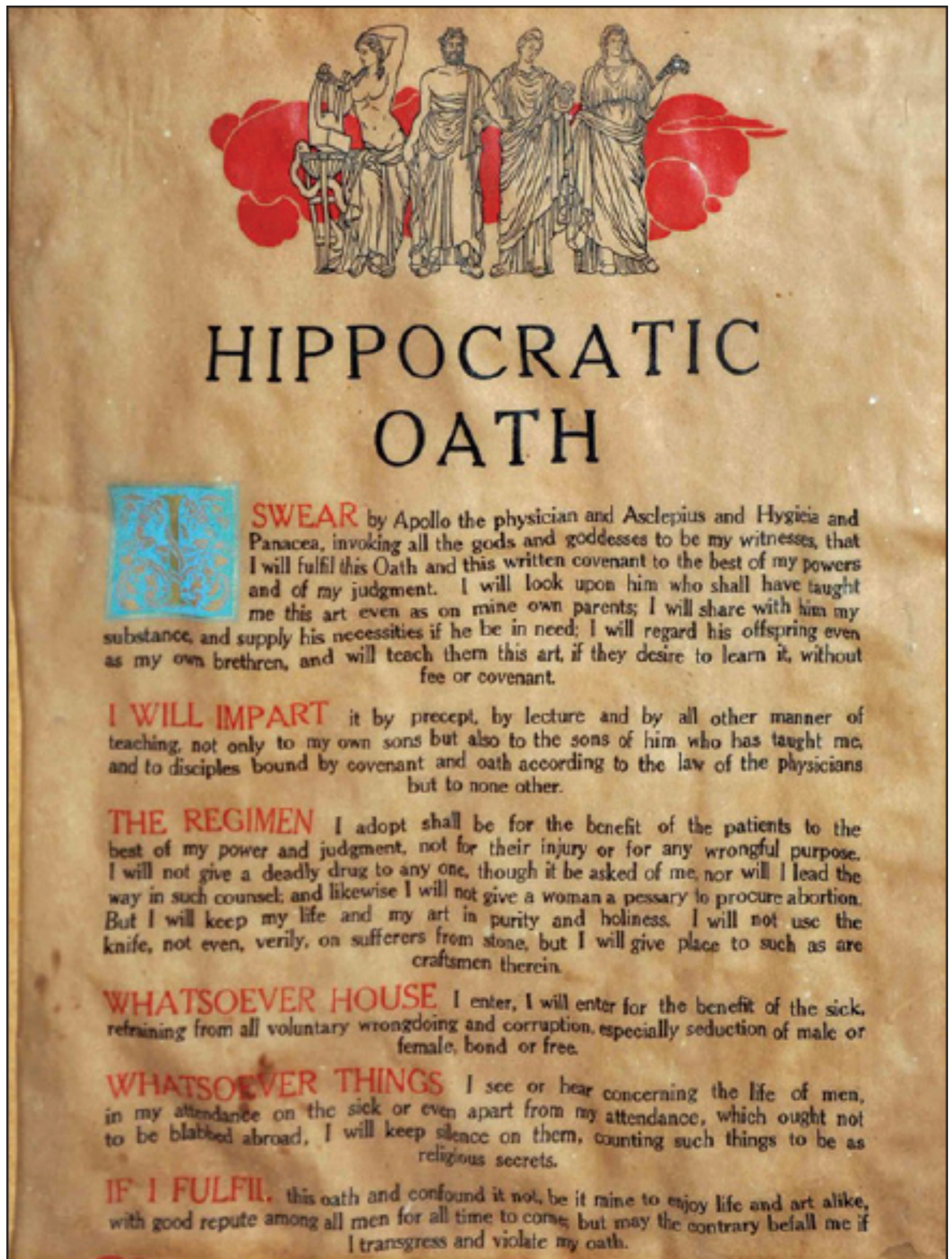
Annex 1. *Hippocrates oath as translated by Michael North from Official publication of Society for Journal of Practice of Cardiovascular Sciences.*



HIPPOCRATIC OATH

I SWEAR by Apollo the physician and Asclepius and Hygieia and Panacea, invoking all the gods and goddesses to be my witnesses, that I will fulfil this Oath and this written covenant to the best of my powers and of my judgment. I will look upon him who shall have taught me this art even as on mine own parents; I will share with him my substance, and supply his necessities if he be in need; I will regard his offspring even as my own brethren, and will teach them this art, if they desire to learn it, without fee or covenant.

I WILL IMPART it by precept, by lecture and by all other manner of teaching, not only to my own sons but also to the sons of him who has taught me, and to disciples bound by covenant and oath according to the law of the physicians but to none other.

THE REGIMEN I adopt shall be for the benefit of the patients to the best of my power and judgment, not for their injury or for any wrongful purpose. I will not give a deadly drug to any one, though it be asked of me, nor will I lead the way in such counsel; and likewise I will not give a woman a pessary to procure abortion. But I will keep my life and my art in purity and holiness. I will not use the knife, not even, verily, on sufferers from stone, but I will give place to such as are craftsmen therein.

WHATSOEVER HOUSE I enter, I will enter for the benefit of the sick, refraining from all voluntary wrongdoing and corruption, especially seduction of male or female, bond or free.

WHATSOEVER THINGS I see or hear concerning the life of men, in my attendance on the sick or even apart from my attendance, which ought not to be blabbed abroad, I will keep silence on them, counting such things to be as religious secrets.

IF I FULFIL this oath and confound it not, be it mine to enjoy life and art alike, with good repute among all men for all time to come; but may the contrary befall me if I transgress and violate my oath.

***Annex 2**. Certificate of image rights.*

CERTIFICATE OF IMAGE RIGHTS

I, the undersigned,

First name.......Marine Jeudi.......Last name.......Jeudi.......

born on 27/11/97 in (place of birth).......TOULOUSE.......

living at (full address), 7 lieu dit Pachanke 31310 Montesquieu -

Declare that I am of legal age and that I am free to pose. I acknowledge that I am not bound by any contract for the exclusive use of my image and/or my voice.

I authorize Kalissa Charréron to reproduce and use my image in the context of the photographs taken for her thesis in dental surgery:

☒ by Kalissa Charreron,

under the following conditions:

-for the whole world for an indefinite period ;

-for the following rights only:

o the right to reproduce or have reproduced the photographs, without limitation of number, in whole or in part, by all means and processes, on all media and materials, both present and future on the day of signature of the present authorisation;

o the right to adapt, modify, transform, develop, assemble, in whole or in part, the shots, to integrate all or part of them into existing or future works, on the aforementioned media and materials

the right to represent or have represented, in whole or in part, the reproductions and adaptations of the shots, to any public, free of charge, and in any type of place, by any means and processes, on any media and materials existing or to come on the day of the signature of the present authorisation;

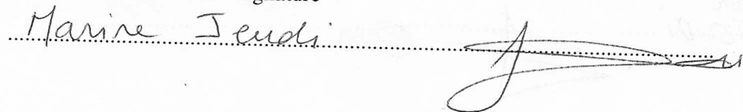
-for the sole purpose of communication and promotion of Kalissa Charréron's thesis in dental surgery.

The present authorisation is granted free of charge and non-exclusively.

In accordance with the European General Data Protection Regulation of 27 April 2016 (RGPD), Kalissa Charréron undertakes to process my data in order to record and exploit my image and/or my voice under the conditions set out in this authorisation. This processing is based on the mission of interest of Kalissa Charréron's thesis writing for the graduation of dental surgeon. I can exercise my rights of access, rectification, limitation and opposition, as well as make arrangements for the processing of my post-mortem data at the following e-mail address: kalissa.charreron@gmail.com

Done at ....Gandra......., on ....21/04/22 (DD/MM/YY)

First name, surname and signature



- **Kalissa Charréron:** What you consider as "not normal" and so alienized?

- **Dr Steven Harris:** So, for example we have this angle here (reference to the angle of the mandibula), so we said it is between 105 to 120 degrees but that apply to Caucasian women's you understand? So, there is variation that have been measured actually, we do have measure for Asian, African and there are other normal ranges that we accept but there is a certain artistic element to it. I think we have a builded instinct to recognized when something is outside human. Why? How do we know that? It is an area that haven't been studied very much but we know that with artificial intelligence and robot, it is called the uncanny valley. You know about it?

- **Kalissa Charréron :** No, I don't.

- **Dr Steven Harris:** It is an uncomfortable feeling we get when someone is almost human but not really. It looks like it, but it is not. You understand? And it makes us feel uncomfortable. When something is not human, it is a little bit off, we feel it. And they try to understand this. It is called the uncanny valley. And if you read about it, I will write it down for you. It need more investigation…

  (Write it down)

  But it applies to artificial intelligence and robots. In the case of alienization it can also applied. There are 2 ways to explain it, one is that how we think about it, it's "oh it is outside the range" but is also evolutionary thing, that's really difficult to study. What does That mean? It means that we generally as a human being have preference for average features. Why? Because we know that if you stick to that safety, it maximizes the chance of survival our species. But when soldo-me is outside average it can be threatening in other words it reduces the chances. So, we see people as a threat to our survival as a species because there are outside average. We act in a certain way that we don't want to do nothing with it. It just disgusted is or we can just see it as a tread, cause it can be scary. There are some of the reasons how we reacted to this thing.

- **K.C:** Alienization, does the term itself refer to the image of the alien (fox eyes, bichec-tomy, lip filler, chin augmentation...) or to what is not natural/human so ... Alien?
- **Dr S.H:** Actually, all of them apply. The main things for me was outside normal range.

- **K.C:** Does it let any places for fantasy is aesthetics surgery?

- **Dr S.H:** Yeah, some people want to stand out, they want to be different. From an aesthetic point of view. When you deviate outside this range, there is increase risks with the procedures. If you giving someone a chin like this … (showing something big) we know that it is associate with more risks. Not just psychological but psychological also because even if the person thinks it is ok, the world, how we react to them gonna affect them also. Cause we are social human being; we are living in society. So, if you gonna walk around you gonna get reactions, and these reaction can feed back, at least you don't give a damn. But for example, when you are restoring lips, we know there is increase risks like blocking arteries, failure migration for example for overfilling. So, we know there is risk associated to distorted features. And that's why it is not that we are denied someone's fantasy, but we are filling our duty to first do not harm. That's as doctor our first priority. First do not harm. So, it is not that I am acting like a parent, no I am fulfilling my duty care of first do not harm.

- **K.C:** You said that the blame of alienization is on 'daily bombardment of abnormal im-ages' and on a rise in those suffering Body Dysmorphic Disorder.
How can this increase in BDD be explained?

- **Dr S.H:** BDD, first of all, only became formally known as a disorder in 1997, when it was included in the DSM and because of it it is associated with co morbidity. So, people have body dysmorphic disorder but also have majeure depression, anxiety, OCD, phobias etc… and there often because of that and if they realize they have a disorder it's often associated with shame and embarrassment. So, they don't come forward with it. And then there is another class of that half of BDD patient have put it inside, they don't realize it is a psychological problem, they think there is something wrong with them physically. So, because of all those reasons, it is underreported and under-diagnosed. You understand? But social media has a maybe acted like a kind of platform where maybe it doesn't create BDD but it brings it out. Like a trigger. And do that can be one explanation to why more people are coming forward with it. Another reason could be, that we become more and more aware of the disorder, and as we gained more awareness, we gain to be diagnosed more. So that's another factor. But like you said social media doesn't cause it, it act like a trigger and it could explain how we are seeing more of it. Because maybe more people are coming out with it.

- **K.C:** You talk about war against alienization, which means that it is our enemy, so I have two questions:

  -What are our weapons? (*Public awareness?)*

-How do we defeat it? *(What is the strategy? Better training of practitioners in this kind of procedure? Stricter regulation of doctors who can perform this kind of procedure by the state?)*

- **Dr S.H:** Education is our weapon, and this is what I am doing on social media. Is about educating practitioners and patient. Because practitioners half the time are looking like alien themselves. So, it is about raising awareness and it can only be done by education. And you know, listen, esthetical medicine is a new field, it's the youngest field of medicine, even though esthetic come from the time of Egyptian and Greek, the practice of esthetical medicine as we know it now with injection and augmentation like that is recent. I mean fillers only came out in the 90's. So, it is recent. Botox is 1994 or something. So, they are recent things. So, we have a really long way in front of us. But these are the issues we need to tackle now, you understand? Because if not, then this kind of practice of making people out of normal could get worse and worse and worse. So, we need to put an end to it. We need to make it end. And the way to do it is to say, "you can't do it". Because patient is always finding a way of doing it. There is always gonna be one practitioner that gonna say "yes I'll do it." So, the only way to educated is to say listen there is other risk associated with it. There is maybe some short-term benefit but in the long run, this filler is going to migrated, there is risk associated with the procedure itself. Maybe you need to think about it.

- **K.C:** And what about the Formations? You wrote that « It would appear that while for example our knowledge and understanding of anatomy is increasing exponentially, this is at the expense of artistry which is grossly lacking in our industry. »

- **Dr S.H:** It is a new field and only get recognize as a branch of medicine recently. And it is medical. I mean Botox is under prescription only and filler are medical devices. In my opinion these injections should be done only by healthcare professionals. And with preference to professional who can proscribed and diagnosed. In case of any complications. In the UK we have no regularization. So, if you are a plumber, you can inject. You can fix the toilet and inject the person at the house. No one is gonna stop you. But it is changing. For example, the age of consent is now 18. So, if you are under 18 you can't make any procedures. So, this things are now changing, and it is going to change but it takes time.