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Update of Our Knowledge about Abdominoplasty in Kinshasa: Epidemiological Survey and Literature Review Authors

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Abstract

Context and Objective: Abdominoplasty is a common plastic surgery procedure, a specialty that is not taught in our medical schools. The objective of this study was to update our knowledge about abdominoplasty based on doctors' level of knowledge in hospitals of the city-province of Kinshasa. **Methods:** This was a review of the literature supported by an epidemiological survey carried out among 636 doctors in the city-province of Kinshasa from August 1 to October 31, 2023. The p-value < 0.05 was considered as the threshold of statistical significance. **Results:** A total of 636 respondents were included in this study. The sex ratio (M/F) was 4.05. The age group of 25 to 35 years represented 46.2% of respondents. Among the respondents, 85.8% were general practitioners, 6.6% surgeons, 3.3% gynecologists, 2.7% internists and 1.6% pediatricians. The general knowledge of respondents about abdominoplasty was good at 65.3%, excellent at 25.3% and poor at 9.4%. Their level of specific knowledge was low at 84.4% and good at 15.6%. The good level of general knowledge decreased with the age of the respondents ($p < 0.001$) while the excellent level decreased with their training levels ($p = 0.002$). Surgeons and gynecologists had a good level of specific knowledge compared to other medical specialties ($p = 0.005$). **Conclusion:** Abdominoplasty is one of the common operations in plastic surgery. Nowadays, it is complex but well-mastered. Its description, indications, contraindications and complications seem to be unknown to the surveyed doctors.

Keywords

Abdominoplasty, Evaluation, Level of Knowledge

1. Introduction

The abdominal wall is an important feature of one's shape considering the aesthetic point of view, especially in women. Its unsightly form and alterations have a psychological impact [1]. They can cause aesthetic damage or an alteration of self-esteem and social withdrawal [2].

The desire to appear beautiful is natural and inherent in every human being. The small round belly and good shapes, often considered in further centuries as an aesthetic feature, are no longer fashionable. Nowadays, patients are looking for a good shape with a perfect flat belly and a good size [3]-[5]. The abdominal apron due to pregnancy, age and/or significant weight variations [3] [6] is generally experienced as bothering in daily life, physical activities, dressing, intimate life and others. This situation often motivates a request for abdominoplasty. The treatment of the abdominal apron no longer consists of a simple functional dermolipectomy with or without navel remove, with less aesthetic result in final. Abdominoplasty techniques take into account many well-planned details (outline of the suprapubic incision, shape of the umbilicoplasty, treatment of auxiliary disorders, etc.) [7], associated with liposuction [8]. The goal is to conceal the scars as best as possible, to achieve the most complete and natural result possible even for the most demanding patients [7] [8]. However, abdominoplasty exposes the patient to risks and complications (hematoma, seroma, infection of the surgical wound, dehiscence of the surgical wound, and so on).

In addition to excess abdominal skin and fat [1] [9], other indications for abdominoplasty are well known and controlled [7] [8]. Abdominoplasty is therefore nowadays becoming more complex but also more invasive surgery with higher morbidity and mortality [9] [10] leading to the refusal of some surgeons to perform it [11] in the presence of major metabolic comorbidities [12] [13]. It is contraindicated in cases of smoking, planning pregnancy in an unstable weight or a body mass index (BMI) greater than 30 kilograms per square meter (kg/m^2) [7] [8]. It is a common operation in plastic surgery [6] [8] with 193.439 operations per year in the United States; 161.441 in Brazil; 30.789 in Germany and 24.200 in France [14]. It represents the fourth most performed plastic surgery procedure in developed countries with 7.3% of procedures after liposuction (14.2%), breast augmentation (12.0%) and eyelid surgery (11.0%) [15].

It is constantly increasing in some developing countries such as Brazil and Iran [14] [15]. The practice of abdominoplasty is increasingly common in sub-Saharan Africa [16] [17]. This increase in demand for abdominoplasty contrasts with the glaring lack of surgeons in general and plastic surgeons in particular. For example, in Zambia, there were one hundred surgeons in 2020 for a population of 16 million inhabitants [18]. In addition, the Democratic Republic of Congo (DR Congo) with a population of 102 million inhabitants currently has only two qualified plastic surgeons only in Kinshasa the capital [19]. In addition, plastic surgery is not included as a major in training of general practitioners at the faculty of medicine of the University of Kinshasa. This faculty of medicine is the oldest (70 years old)

and the largest medical faculty in Kinshasa belonging to the Democratic Republic of Congo State alongside 5 others small and young (less than 25 years old) faculties, all private. Hence, the interest of this study is to update our knowledge on abdominoplasty based on the doctors' level of knowledge in hospitals in Kinshasa.

2. Patients and Methods

This is a review of the literature based on an epidemiological survey. A pre-survey was carried out at the University Clinics of Kinshasa in order to evaluate the questionnaire used and the investigators, to obtain the reactions of the respondents, and to get an idea of the duration of the study. The survey was performed from August 1 to October 31, 2023. We did not determine the sample size in the initial phase of this survey. A Google Mail (Gmail) link allowing access to the survey questionnaire was distributed by 26 investigating doctors through WhatsApp to the accessible doctors in the city-province of Kinshasa. Only doctors who consented and agreed to respond freely and anonymously to the questionnaire were included in the survey. The main investigator collected the data via a confidential email.

The survey questionnaire used was developed by several experts, including a French plastic surgeon, a Congolese epidemiologist, a Congolese expert in biostatistics.

It included the following variables of interest:

- Sociodemographic variables (sex, age, university of training, level of medical training, medical specialty, seniority, sector of practice);
- Questions related to general knowledge on abdominoplasty (information on abdominoplasty, definition, source of information, classification of body mass index (BMI), relationship between BMI and abdominoplasty, performance in Kinshasa, surgical specialty, additional useful examinations);
- Questions related to specific knowledge (interest in associated liposuction, circumstances of this association, smoking as a contraindication, complications, and postoperative measures).

We proposed 2 scores, the first (based on 8 questions) to evaluate the level of general knowledge of the doctors questioned about abdominoplasty, the second (based on 5 questions) to evaluate their level of specific knowledge. In these scores, the level of knowledge of the surveyed doctors was judged low when the sum of correct answers was less than 50%, good when the sum was between 50 and 70% and excellent if it was greater than or equal to 70%.

The collected data was recorded on Excel 2010 software, then exported to IBM SPSS version 26.0 software for analyses. Categorical variables were presented as absolute and relative frequencies. Comparison of proportions was performed using Pearson's chi-square test. The p value < 0.05 was considered as the threshold for statistical significance. The collection and processing of data were performed with respect to the respondents, their well-being, and their concerns for justice.

3. Results

3.1. General Characteristics of the Population

This survey covered a total of 636 respondents working in 13 hospitals in the city-province of Kinshasa (University Hospital of Kinshasa, Provincial Reference Hospital of Kinshasa, General Hospital of Kintambo, Central Military Hospital of Kokolo, General Hospital of Matete, Initiative Plus Hospital, Ngaliema Clinic, Ngaliema Medical Center, Hospital Center Monkole, Saint Joseph Hospital, Biamba Marie Mutombo Hospital, China-Congo Friendship Hospital, Makala General Hospital).

Among the respondents, there were 510 men and 126 women, with a sex ratio (M/F) of 4.05. The age group of 25 to 35 years old was the most representative with 46.2% of respondents while those over 45 years old were the least representative with 14.2% of respondents. Women were younger than men ($p < 0.001$). 80.2 % of respondents studied at a public university. There were twice as many women trained in public universities as in private universities ($p < 0.001$). Most of the respondents were general practitioners or specialist doctors with 48.1% and 37.7% respectively. There were more male than female specialist doctors (16.5% vs 4.8%) ($p < 0.001$).

Among the respondents, 85.8% were general practitioners, 6.6% surgeons, 3.3% gynecologists, 2.7% internists and 1.6% pediatricians. In terms of specialties, there were fewer female gynecologists (4.8%) than general practitioners (95.2%) ($p < 0.001$). More than half of the respondents (56.6%) had been practicing medical profession for more than 5 years while 20.1% had been practicing for 2 years ($p < 0.001$). 39.6% of respondents worked in both the public and private sectors while 38.7% worked in the public sector. We found a statistically significant link between seniority and gender, also between the sector of practice and the gender of the respondents ($p < 0.001$). There were older men in the profession than women (62.4% vs 33.3%). While there were more women working in private hospitals than men (47.6% vs. 15.3%).

3.2. General Knowledge of the Population

In terms of general knowledge about abdominoplasty, almost all of the respondents, 93.4%, had heard about abdominoplasty while 36.8% knew how to define it fairly correctly. All of the respondent women (100%), had heard about abdominoplasty ($p < 0.001$). Among all respondents, only 34.9% had learned these concepts as part of a course organized at the medical school. All respondents, *i.e.* 100%, knew the body mass index (BMI) classification according to the World Health Organization (WHO) (Table 1).

Most of respondents knew that abdominoplasty could be performed in Kinshasa (80.9%) and that plastic surgery was the specialty that performed it (83%), while a minority (29.2%) knew about useful supplement examination. We found a statistically significant link between gender and knowledge of the practice of abdominoplasty in Kinshasa as well as knowledge of the involved specialty. There

were fewer women informed about the practice of abdominoplasty in Kinshasa than men (70% vs 83.6%) (p = 0.001). While there were more women informed about the surgical specialty involved in the practice of abdominoplasty than men (p < 0.001) (Table 1).

Table 1. General knowledge of the population.

Variables	Population n = 636	Sex		P
		Male n = 510	Female n = 126	
Abdominoplasty information				0.001
No	42 (6.6)	42 (8.2)	0	
Yes	594 (93.4)	468 (91.8)	126 (100)	
Definition				0.735
No	402 (63.2)	324 (63.5)	78 (61.9)	
Yes	234 (36.8)	186 (36.5)	48 (38.1)	
Source of information				0.001
Course	222 (34.9)	144 (28.2)	78 (61.9)	
Training	84 (13.2)	84 (16.5)	0	
Others	330 (51.9)	282 (55.3)	48 (38.1)	
Link BMI-abdominoplasty				< 0.001
No	145 (22.8)	97 (19)	48 (38.1)	
Yes	491 (77.2)	413 (81)	78 (61.9)	
Pratice of abdominoplasty in Kinshasa				0.001
No	115 (19.1)	79 (16.4)	36 (30)	
Yes	486 (80.9)	402 (83.6)	84 (70)	
Surgical specialty involved				< 0.001
Others	108 (17)	102 (20)	6 (4.8)	
Plastic surgery	528 (83)	408 (80)	120 (95.2)	
Knowledge about useful supplement examination				
No	450 (70.8)	366 (71.8)	84 (66.7)	
Yes	186 (29.2)	144 (28.2)	42 (33.3)	

3.3. Specific Knowledge of the Population

A few respondents had knowledge about the complications of abdominoplasty (21.7%), about the association between liposuction and abdominoplasty (21.6%), between smoking and abdominoplasty (29.3 %). No respondent knew the circumstances of combining liposuction with abdominoplasty or the essential postoperative measures after an abdominoplasty (Table 2).

Table 2. Specific knowledge of the population.

Variables	Population n = 636	Sex		P
		Male n = 510	Female n = 126	
Can liposuction be combined with abdominoplasty?				0.153
No	485 (78.4)	396 (79.5)	89 (73.6)	
Yes	134 (21.6)	102 (20.5)	32 (26.4)	
Is smoking a factor of contra indication?				0.079
No	437 (70.7)	360 (72.3)	77 (64.2)	
Yes	181 (29.3)	138 (27.7)	43 (35.8)	
Complications				0.420
No	498 (78.3)	396 (77.6)	102 (81)	
Yes	138 (21.7)	114 (22.4)	24 (19)	

3.4. Assessment of the Level of General Knowledge of the Population

The level of general knowledge of the respondents was good in 65.3% of cases, excellent in 25.3% of cases and low level in 9.4% of cases. We did not find a link between the level of general knowledge of abdominoplasty and gender ($p = 0.062$).

3.5. Assessment of the Level of Specific Knowledge of the Population

The level of specific knowledge about abdominoplasty was low in 84.4% of cases and good in 15.6% of cases. No respondent had an excellent level of specific knowledge. We did not find a link between the level of specific knowledge of abdominoplasty and gender ($p = 0.229$).

3.6. General Characteristics of the Population and General Knowledge

The good level of general knowledge decreased with the age of the respondents ($p < 0.001$) while the excellent level decreased with the training levels of the respondents ($p = 0.002$). We did not find a significant statistical link between gender, university of training and level of general knowledge about abdominoplasty (Table 3).

Surgeons and gynecologists had good knowledge compared to other medical specialties ($p < 0.001$), while the good level of knowledge increased gradually with seniority. Respondents with more than 5 years of seniority had approximately 3 times the good level of knowledge than practitioners with less than 2 years of seniority. Doctors working in the public sector had an excellent level of general knowledge than those working in the private sector (47.8% vs 18.6%) ($p = 0.017$) (Table 3).

Table 3. General characteristics of the population and general knowledge.

Variables	Population n = 636	Level of general knowledge			P
		Low n = 60	Good n = 415	Excellent n = 161	
Sex					0.062
Male	510 (80.2)	48 (80)	343 (82.7)	119 (73.9)	
Female	126 (19.8)	12 (20)	72 (17.3)	42 (26.1)	
Age groups					<0.001
25 - 35 years	294 (46.2)	12 (20)	217 (52.3)	65 (40.4)	
36 - 45 years	252 (39.6)	30 (50)	150 (36.1)	72 (44.7)	
>45 years	90 (14.2)	18 (30)	48 (11.6)	24 (14.9)	
University training					0.114
Public	510 (80.2)	54 (90)	331 (79.8)	125 (77.6)	
Private	126 (19.8)	6 (10)	84 (20.2)	36 (22.4)	
Level of medical training					0.002
General Practitioners	306 (48.1)	24 (40)	216 (52)	66 (41)	
Doctors during specialization	240 (37.7)	30 (50)	151 (36.4)	59 (36.6)	
Specialists	90 (14.2)	6 (10)	48 (11.6)	36 (22.4)	
Medical specialties					< 0.001
Surgery	42 (46.7)	0	18 (8.1)	24 (14.9)	
Gynecology	21 (23.3)	0	10 (4.5)	11 (6.8)	
Internal medicine	17 (18.9)	6 (10)	11 (5)	0	
Pediatrics	10 (11.1)	0	9 (4.1)	1 (0.6)	
General medicine	546 (85.8)	54 (90)	172 (78.2)	125 (77.6)	
Seniority					<0.001
≤2 years	128 (20.1)	0	82 (19.8)	46 (28.6)	
3 - 5 years	148 (23.3)	12 (20)	117 (28.2)	19 (11.8)	
>5 years	360 (56.6)	48 (80)	216 (52)	96 (59.6)	
Field of practice					0.017
Public	246 (38.7)	24 (40)	145 (34.9)	77 (47.8)	
Private	138 (21.7)	18 (30)	90 (21.7)	30 (18.6)	
Public and private	252 (39.6)	18 (30)	180 (43.4)	54 (33.5)	

3.7. General Characteristics of the Population and Specific Knowledge

No doctor who participated in the current survey had an excellent level of specific

knowledge about abdominoplasty (Table 4). Apart from medical specialties, no statistically significant link was found between other epidemiological variables (sex, age groups, university of training, level of medical training, seniority, and

Table 4. General characteristics of the population and specific knowledge.

Variables	Population n = 636	Level of specific knowledge		P
		Low n = 537	Good n = 99	
Sex				0.229
Male	510 (80.2)	435 (81)	75 (75.8)	
Female	126 (19.8)	102 (19)	24 (24.2)	
Age groups				0.444
25 - 35 years	294 (46.2)	243 (45.3)	51 (51.5)	
36 - 45 years	252 (39.6)	215 (40)	37 (37.4)	
>45 years	90 (14.2)	79 (14.7)	11 (11.1)	
University training				0.080
Public	510 (80.2)	437 (81.4)	73 (73.7)	
Private	126 (19.8)	100 (18.6)	26 (26.3)	
Level of medical training				0.090
General Practitioners	306 (48.1)	262 (48,8)	44 (44.4)	
Doctors during	240 (37.7)	206 (38.4)	34 (34.3)	
specialization	90 (14.2)	69 (12.8)	21 (21.2)	
Specialists				
Medical specialties				0.005
Surgery	42 (46.7)	32 (6.1)	10 (10.1)	
Gynecology	21 (23.3)	11 (2)	10 (10.1)	
Internal medicine	17 (18.9)	16 (2.9)	1 (1)	
Pediatrics	10 (11.1)	10 (1.9)	0	
General medicine	546 (85.8)	468 (87.2)	78 (78.8)	
Seniority				0.401
≤2 years	128 (20.1)	104 (19.4)	24 (24.2)	
3 - 5 years	148 (23.3)	129 (24)	19 (19.2)	
>5 years	360 (56.6)	304 (56.6)	56 (56.6)	
Field of practice				0.216
Public	246 (38.7)	212 (39.5)	34 (34.3)	
Private	138 (21.7)	120 (22.3)	18 (18.2)	
Public and private	252 (39.6)	205 (38.2)	47 (47.5)	

field of practice) and the level of specific knowledge of respondents on abdominoplasty. Surgeons and gynecologists had a good level of specific knowledge compared to other medical specialties (p = 0.005) (**Table 4**).

4. Discussion

This epidemiological survey aimed to update our knowledge on abdominoplasty through an evaluation of the current level of knowledge of doctors in hospitals in the city-province of Kinshasa showed the following essential results: the level of general knowledge of doctors was good in 65.3% of cases, excellent in 25.3% and low in 9.4% of cases. Their level of specific knowledge was low in 84.4% of cases and good in 15.6% of cases. No doctor was excellent in terms of specific knowledge. Taking into account the general objective of this study, our discussion will be based on the evaluation of the level of general and specific knowledge of the doctors interviewed in relation to the literature data.

4.1. General Knowledge of the Population

The definition of abdominoplasty includes the removal of localized excess skin and fat, the suprapubic incision and transposition of the umbilicus. In this study, 93.4% of doctors claimed to have already heard of abdominoplasty, only a minority (36.8%) knew how to define it correctly. Several reasons can justify this contrast: the fact that 85% of doctors were general practitioners justifying the relatively young age of the respondents (85.8% aged fewer than 45), the scarcity of plastic surgery services and the lack of teaching of plastic surgery at the undergraduate level in medical schools [19]. Hence a minority of doctors (34.9%) had learned the concepts of abdominoplasty as part of a course at medical school. Indeed, abdominoplasty is one of the multiple surgical procedures for repairing the abdomen for aesthetic or functional purposes [7] [8]. It aims to obtain a narrower and flatter abdomen (**Figure 1**) by correcting 3 parietal planes: the cutaneous plane, the fatty plane, the musculo- aponeurotic plane.

The skin is put into tension for as discreet a scarring as possible. Its correction is done either by extended abdominoplasties (classic abdominoplasties) or by localized abdominoplasties (mini-abdominoplasties) [3]. Extended abdominoplasties are characterized by significant undermining skin to expose a loose abdominal wall to allow skin lifting [7] [8]. They are mainly represented by plasties with transverse or horizontal incisions, and rarely by plasties with vertical or mixed incisions. Low transverse abdominoplasty with transposition of the umbilicus performs a resection of the subumbilical cutaneous-fatty plane from a suprapubic incision to the costal and xiphoid level. The umbilicus with a circular collar is then released from its skin attachments to allow the upper flap to be lowered onto the lower bank.

Finally comes the exteriorization of the umbilicus on this upper flap [3] [8]. There are also other variants of the classic abdominoplasty: upper high tension abdominoplasty, transverse abdominoplasty with neo-umbilicoplasty, circular

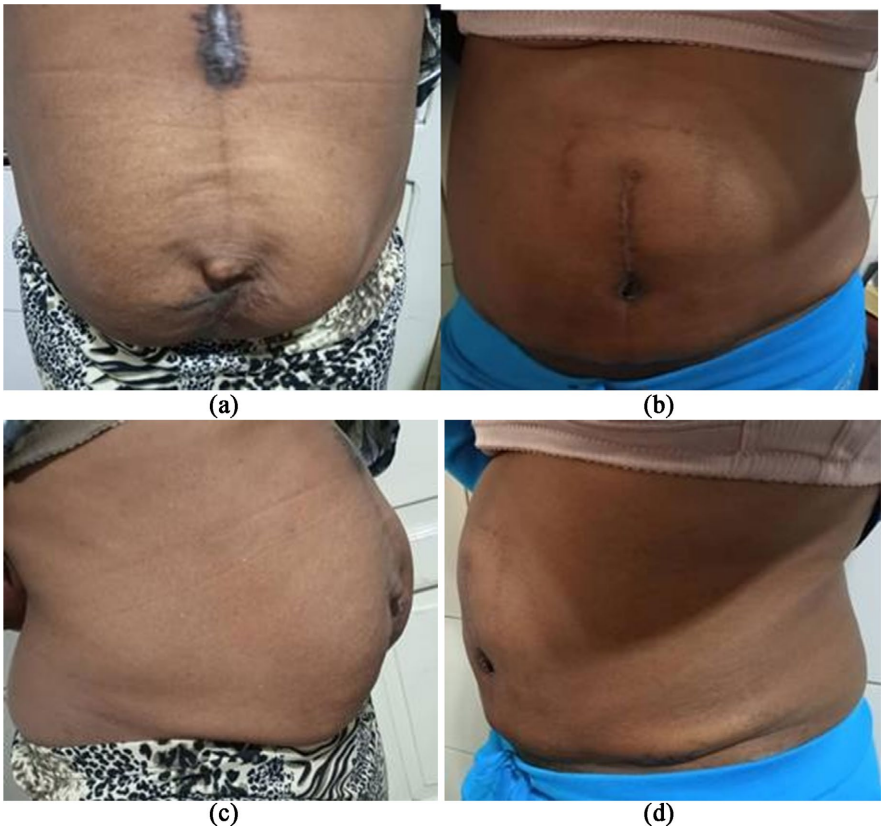

Figure 1. Abdominoplasty combined with liposuction and keloidectomy. (a) Front view before operation; (b) Front view 4 weeks post-operative; (c) Profile view before operation; (d) Profile view before operation.

abdominal dermolipectomy [3]. Fat plane correction is the domain of blunt cannula liposuction and is often associated with abdominoplasty [3] [9]. Correction of the musculo-aponeurotic plane is necessary in case of its relaxation and/or diastasis of the rectus abdominis muscle. Most of the time, plication is carried out using inverting U-shaped points [3] to restore the tensor effect of the anterior aponeurosis.

Let us remember that in this survey 19.1% of doctors did not know that this surgery was possible in Kinshasa and 17% did not know the surgical specialty involved. These results once again demonstrate the need for education and popularization of the concepts of abdominoplasty by educators and policy makers through different communication channels such as the media.

In addition, the level of general knowledge was excellent, at only 25.3%. This excellent level logically decreased with the level of training of doctors while the good level of knowledge decreased with the age of the respondents. Most doctors (70.8%), did not master the useful additional examination preoperatively.

Indeed, several additional examinations are useful preoperatively (laboratory test in particular blood sugar level, hemoglobin level; imaging examinations in particular abdominal TDM, abdominal ultrasound, Doppler ultrasound of the lower limbs). Determining the preoperative hemoglobin level is of particular importance, especially in male subjects undergoing abdominoplasty because of the

increased risk of bleeding [11]. Dinahet T. *et al.* in a retrospective, single-center study, including a case group of 105 male subjects and a control group of 105 women who underwent anterior (n = 70) and circular abdominoplasty (n = 35) highlighted an increased risk of developing a hemorrhagic complication, mainly a hematoma or the need for an external blood supply, in the male group (OR = 2.72 [1.03 - 7.14]) [11].

The factors incriminated are the larger caliber of peripheral vessels in men20, the overrepresentation of hypertension in men, excess weight, as well as greater cardiac output [11]. Hence, the importance of taking pre, per and postoperative precautions (globular supplementation, the use of surgical clips or ligatures of the main perforating pedicles or even the use of tranexamic acid [20], drain installation).

Abdominal TDM or abdominal ultrasounds are not only used to demonstrate a rectus diastasis already visible on physical examination. They also help to exclude the presence of a clinically occult hernia, often in the umbilical region which can lead to the intraperitoneal passage of a liposuction cannula with a risk of visceral perforation [21]. Doppler ultrasound of the lower limbs is useful in subjects with a medical history of deep vein thrombosis of the lower limbs and in those with risk factors such as venous insufficiency [22].

4.2. Specific Knowledge of the Population

The results of this survey demonstrate a remarkable insufficiency of doctors in the city-province of Kinshasa with specific knowledge of abdominoplasty. Indeed, no doctor presented an excellent level of specific knowledge and 84.4% of doctors had a low level. Only surgeons and gynecologists have a good level of specific knowledge. The evaluation of the level of specific knowledge in this study was based on the interest in liposuction, the circumstances of its association with abdominoplasty, smoking as a contraindication, complications and essential postoperative measures.

Cannula liposuction, which is a procedure developed by Illouz in 1977 and popularized in 1982 [3] [9], is intended for the correction of the fatty plane. It consists of the suction of fat cells, the creation of tunnels likely to lead during their healing, and skin retraction with rewrapping of the skin. It is used in the case of deep fat, which cannot be easily mobilized, mainly in the subumbilical region. Its complications are linked either to a very deep aspiration which can cause lesions of the musculo-aponeurotic plane, or even to the intra-abdominal viscera [21], or to superficial aspiration leading to retraction of the dermis with skin adhesions on the aponeurotic plane which is very difficult to treat secondarily [3].

Liposuction is often associated with an infiltration of adrenaline-filled physiological serum to prevent the risk of hemorrhage and facilitate the creation of the tunnels. Primary liposuction is very often combined with an abdominoplasty to minimize scarring [3], in the absence of an aponeurotic parietal defect and a BMI greater than 30 kg/m^2 [3] [9] [21]. In this study, 21.6% of doctors knew that liposuction could be associated with abdominoplasty, but none of them knew the cir-

cumstances of this association. Likewise, minority of doctors (29.3%) knew that smoking was a contraindication to abdominoplasty. Remember that in addition to smoking, other contraindications for this procedure are planning a pregnancy in the near future, an unstable weight, a BMI of more than 30 kg/m^2 [3] [8] [9].

If no respondent knew the essential postoperative measures of abdominoplasty, some respondents (21.7%) had knowledge of the complications of abdominoplasty even though abdominoplasty is known to have a high complication rate [10]. This rate is particularly variable in the literature, ranging from 4% to 67% [10] [23]. Some authors categorize them into early complications and long term complications [5], others distinguish them into major complications and minor complications [24]. Several authors do not include disunions and delays in healing among the complications. Hematomas are diagnosed clinically by the appearance of swelling, early induration at the surgical site, pain in the area, associated or not with deglobulization [6] [11]. Seroma formation is the most common complication of abdominoplasty ranging from 0 - 30% approximately [6] [10].

Seroma formation is largely due to significant separation during the operation [7] [8] [10]. It is a source of discomfort for the patient, prolongation of treatments and secondary complications such as infection, healing disorders and encystment [25]. The infection rate of abdominoplasties varies between 1% and 2%. It is higher in cases of immune depression than in diabetic patients [7] [8]. In addition to the complications mentioned above, other complications of abdominoplasty are skin necrosis and dehiscence of the surgical wound, the onset of keloid or hypertrophic scars, irregularities due to insufficient fat reduction or residual lipomeria [6] [7] [8]. Pulmonary embolism is a rare but potentially fatal complication of abdominoplasty [7] [8] [10]. The prevention of venous thrombosis and pulmonary embolism is based on the recommendations of the French Society of Anesthesia and Resuscitation (SFAR) with preventive anticoagulation which begins postoperatively, the wearing of intermittent pneumatic compressions and above all, getting up as soon as possible [24] [26]. Careful selection of patients can limit postoperative complications [24].

4.3. Limitation of This Study

This survey certainly presents limitations related to the quality of the respondents (a single category of medical personnel), the non-randomization of the sample (not allowing the generalization of the results) and the non-integration of many other notions about abdominoplasty.

4.4. Strength of This Study

However, this study is the very first to assess the level of the doctors' knowledge about the shape surgery which helped us review our knowledge of this procedure.

5. Conclusion

Abdominoplasty is a fairly common procedure in plastic surgery. Nowadays it is

complex and controlled in relation to its indications, its complications and its contraindications. The issues of this survey show that this procedure of shape surgery is poorly mastered by the surveyed doctors. This observation pleads for reform by Congolese policymakers and educators of the plastic surgery training program for general practitioners in our medical faculties.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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Appendix. Questionnaire Used in Our Inquiry

Unit 1. Sociodemographic Parameters

1. Sex: Male/Female
2. Age: <25 years; 35 years/< 36; 45 years/>45 years
3. University training institution
4. Medical training: General practitioner/Specialization/Specialist
5. If specialist, discipline
6. Number of years of professional practice as a Doctor
7. Sector of practice: Public/Private/Public and private

Unit 2. General Knowledge

1. Have you already heard of abdominoplasty? Yes/No
2. Define abdominoplasty
3. What was your source of information? Courses/Training/Other sources of information (Specify)
4. Do you know the WHO classification of the Body Mass Index? Yes/No
5. Is there a determining link between BMI and the indication for abdominoplasty? Yes/No
6. In your opinion, which surgical specialty performs abdominoplasty?
7. Is abdominoplasty possible in Kinshasa? Yes/No
8. What are the additional examinations useful for abdominoplasty?

Unit 3. Specific Knowledge

1. Can liposuction be associated with abdominoplasty? Yes/No
2. What are the circumstances of this association?
3. Is smoking a contraindication for abdominoplasty? Yes/No
4. What are the complications of abdominoplasty?
5. What are the essential postoperative measures?