Outpatient treatment of abdominal wall hernia.

A strategy to reduce the impact of the COVID-19 pandemic

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Outpatient treatment of the abdominal wall hernia. A strategy to reduce the impact of the Covid-19 epidemic

AIM: *The aim of this study is to demonstrate the feasibility and efficacy of the treatment of abdominal wall hernias in ambulatory setting in selected patients to break down long waiting lists due to the COVID 19 pandemic.*
METHODS: *From February to June 2021, we performed 120 hernia repair operations with local anesthesia in ambulatory settings without anesthetists. (105 inguinal hernia, 6 femoral hernia and 9 umbilical hernia). All patients were selected from our waiting lists first through a telephone interview through an adequate collection of the anamnesis and then clinically (LEE index and ASA score) and based on the characteristics of the hernia.*
RESULTS: *For all patients, the operation was performed under local anesthesia with lidocaine and naropine. Lichtenstein tension-free mesh repair were performed for all patients with inguinal hernia; polypropylene mesh-plug was the technique used to repair the crural hernias while a direct plastic was performed for the treatment of umbilical hernias.. The mean age was 58 years. We did not observe any intraoperative complications and patients were discharged after 4 hours of operation. There was no case of readmission. Only 3 (2.5%) patients developed scrotal bruising. We did not observe any other complications or recurrence at 30 days and 6 months. Most patients (97.5%) expressed satisfaction for local anesthesia and for the path created.*
CONCLUSION: *Hernia pathologies could be treated in ambulatory setting with good results in selected patients and could represent an alternative to face the limitations imposed by the COVID pandemic on daily surgical activities.*

Key words: Ambulatory surgery Cocid-19 Epidemic,Wall hernia

Introduction

Coronavirus Disease-2019 (COVID-19) had an enormous impact on all aspects of healthcare, but its effect on patients needing surgery and surgeons has been disproportionate.

In December 2019, a respiratory disease was identified in the Wuhan province of China, later identified as a novel virus strain. Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) was responsible for the Coronavirus Disease 2019 (COVID-19) that then spread rapidly across the globe, posing a danger that the world had not seen since the second world war.
Surgeons entered this pandemic with the knowledge that perioperative SARS-CoV-2 infection was associated with high morbidity and mortality. One large study estimated the 30-day mortality to be 23.8%, with worse outcomes in those undergoing emergency surgery (25.6% vs. 18.9%) [1]. This and other such studies prompted the cancellation of millions of surgical procedures worldwide. The COVIDSurg Collaborative estimated that over 28 million surgical procedures in 190 countries would be

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cancelled in the estimated 12-week 'pandemic peaks' for each country [2]. Cancer surgery cancellation rates were estimated at 37.6%. For benign surgery, cancellation rates were estimated to be much higher at 81.6% and these comprised 90.2% of all cancellations [2].
These data are absolutely superimposable also to the Italian reality [3].
The expected effect of the constraint on surgical planning, due to the need to limit access to the hospital to a minimum, was to preserve surgical operations for non-postponable interventions, freezing waiting times for surgery for conditions without developmental risk and freeing up professionals and facilities for the care of patients with Covid-19. The choice of timing and the strategy for implementing the hospital plan have effectively made it possible to have an abundant amount of hospitalization facilities in medical wards and in intensive care, to respond to the epidemic peak.
While we gradually proceeded to guarantee the emergencies and above all the oncological surgery interventions, also thanks to the use of private hospitals [4], this did not happen for months for the surgical treatment of benign pathology such as wall pathology and gallbladder stones, increasing the number of urgent interventions for complications [5].
Tuscany was the third Italian region most affected by SARS-COV2 infection and this forced a complete reorganization of both structural surgical activities and hospital staff, not only during the first wave but also during the second in which it was severely affected.
To deal with the stalemate of our waiting lists for hernial pathology at our referral center hospital in Prato, we decided to adopt a protocol that allowed us to perform abdominal wall surgery with local anesthesia in ambulatory settings without anesthetists.

Material and Methods

From February to June 2021, we performed 120 hernia repair operations with local anesthesia in ambulatory settings without anesthetists. (105 inguinal hernia, 6 femoral hernia and 9 umbilical hernia)
All patients were selected from our waiting lists first through a telephone interview through an adequate collection of the anamnesis and then clinically to assess the extent of the hernial pathology.
We have included in this path all patients with a LEE index equal to zero and ASA score lower than 2, We have instead excluded: recurrent hernias, irreducible hernias, inguino-scrotal hernias, bilateral groin hernias, umbilical hernias with hernial defect greater than one centimeter and patients with LEE index greater than 1 as they had multiple comorbidities. In particular we excluded cardiopathic patients, with previous strokes, diabetics, with chronic renal insufficiency, with chronic use of anticoagulants or double antiplatelet therapy, obese, with multiple allergies, pregnant women, episodes of panic attacks or syncope, COPD (Table I).

TABLE I - *Lee Index. The presence of one of the following conditions corresponds to 1 point. A total of zero allows the patient to be enrolled.*

Ischemic heart disease
Heart failure
Ischemic stroke or other neurological conditions
Dyspnea for moderate exertion
Chronic renal failure with glomerular filitrate less than 60 ml / min
Diabetes mellitus requiring insulin therapy
Use of antiplatelet or anticoagulants
Obesity (BMI> 35)
Panic attacks
Multipharmacological allergies
COPD
Syncopes
Pregnancy

All patients underwent nasopharyngeal swab 48 hours before the hospital admission. Patients over the age of 50 years underwent an electrocardiogram.
For all patients, the operation was performed under local anesthesia with lidocaine and naropine. Lichtenstein tension-free mesh repair were performed for all 105 patients with inguinal hernia; polypropylene mesh-plug was the technique used to repair crural hernias while a direct plastic was performed for the treatment of umbilical hernias.

Results

All the characteristics of our patients are summarized in (Table II). The mean age was 58 years. Men patients outweighed female with a ratio 85:35. Mean body mass index was 26 (18-30) kg/m2. The mean operating time was 40.1 +/- 10.3 minutes and we did not observe any intraoperative complications. All patients were given intravenous Ketorolac at the end of the procedure and were discharged after 4 hours of operation. There was no case for readmission. All patients were evaluated after 7 days for surgical wound assessment. Only three (2.5%) patients developed scrotal bruising. We did not observe any other complications.
Patient satisfaction after anesthesia is an important outcome of hospital care for this setting. The level of satisfaction was rated during follow-up using a questionnaire which showed whether they were satisfied, indifferent or dissatisfied with the anesthetic technique. Most patients (97.5%) expressed satisfaction with local anesthesia given and would still prefer such if there is need to undergo a similar procedure while two (1,7%) and one (0.8%) patients were indifferent and dissatisfied, respectively.
We reassessed patients at 30 days, 60 days and 6 months and there were no single cases of recurrence.

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Table II - *Patients characteristics*

	N=120
Age	58 years
Male:Female	85:35
BMI	26 (18-30) Kg/m^2
Type of hernia	
Inguinal hernia	105
Femoral hernia	6
Umbilical hernia	9
Operative time	40.1 +/- 10.3 minutes
Intraoperative Complications	0
7 days complications	3 patients (2.5%) Scrotal bruising

Discussion

The COVID-19 epidemy has been one of the worst health emergencies of our time and it has involved healthcare in all its declinations, from pneumology to infectious diseases, passing through intensive care and internal medicine. Surgery as well has been affected especially in terms of reduction in its activity [6,7]. Several studies have shown that throughout the pandemic period and in particular during the first waves there was a clear reduction in emergency surgery but also a slowdown in oncological surgery. Consequently this has led to an extension of the waiting lists especially for non-deferrable surgical interventions such as non-oncological pathology [8,9].
The decision to adopt a protocol that allowed to perform abdominal wall surgery with local anesthesia in ambulatory settings without anesthetists was a challenge both for surgeons and for patients, nonetheless in our study we performed 120 hernia repair operations without any surgical complications. Moreover, most patient (97.5%) expressed satisfaction for the management, and only one patient (0.8%) was dissatisfied.
From the immediate results of our study, it emerged that performing abdominal wall surgery under local anesthesia is safe and feasible, if a correct and accurate selection of patients is done before surgery. Literature is consistent in promoting local anesthesia for abdominal hernia repair, especially in older patients, and it has already been demonstrated its feasibility without complications, however, in most studies it is not specified whether an anesthetist was present or not.
In 2018 Drissi et al [10] reported the results of ambulatory treatment of 272 incisional hernia repair operations, concluding that this management was safe and feasible, if a good preoperative selection is done; moreover, they indicated some factors that could affect selection and failure of ambulatory treatment such as body mass index or ASA grade>III, interesting, increasing age resulted as an unfavorable factor. While Courtney et al [11] in 2020 state that local anesthesia could reduce complications in inguinal hernia repair both in elderly and young patients, furthermore, it resulted to be cost saving.
As surgeons, we believed that during the COVID-19 epidemy, in which anesthesiologists were highly requested in intensive care units, the possibility to safely perform surgical operations without burdening on them could be a huge advantage for all.
Despite the palpable benefits of ambulatory treatment of abdominal wall hernia repair, particularly during SARS-CoV-2 epidemy, this protocol is burden by limitations, both ideological and practical:
– As previously stated, literature is consistent of the possibility to perform abdominal wall operation under local anesthesia and in an ambulatory setting, but the absence of anesthesiology is an obstacle to overcome.
– To create a "new" protocol for abdominal hernia operations, there is the necessity to assess full collaborations between surgeons, nurses, hospital leadership and patients.
To overcome these issues, we decided to schedule all the operations in the morning, in an operating room placed near to another where a "major surgery" operation was performed. In this way we were able both to have a quick anesthesiologic support, if necessary, and to verify patient conditions before discharge in the afternoon.
A limit of our study is the limited number of patients, together with the absence of a longer follow-up, even if, regarding hernia repair, 30 days could be enough significative; anyway, we strongly believe that further studies are necessary to assess the benefits and the limitations of the ambulatory management of hernia repair without anesthesiologic support.

Conclusion

The COVID-19 pandemic has put surgical disciplines under severe strain, but surgical teams have been quick to rise to the challenge. They have responded to this new threat by developing consensus practical guidelines, establishing research priorities, examining safety precautions, understanding outcomes of different surgery during the pandemic and implementing new protocols like our experience. Vaccination programmes are progressing and it will be necessary to leave quickly and safely to be able to treat all those benign pathologies that the pandemic has unfortunately interrupted its therapeutic process. Hernia pathologies could be treated in ambulatory setting with good results in selected patients and could represent an alternative to face the limitations imposed by the COVID pandemic on daily surgical activities.

Riassunto

La pandemia indotta dall'infezione virale da COVID-19 ha avuto un importante impatto per il nostro Sistema

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sanitario. Ha comportato infatti la necessità di riorganizzare vari settori dell'assistenza ospedaliera, precettando il personale medico e infermieristico e questo ha comportato una netta riduzione di tutta l'attività chirurgica e in particolare della patologia non procrastinabile, cioè la patologia non oncologica.

Per questo motivo per il prolungarsi delle liste d'attesa e la impossibilità di avere personale anestesista nelle sedute elettive di patologia non oncologica, abbiamo realizzato un percorso specifico per il trattamento della patologia erniaria in regime ambulatoriale in pazienti selezionati.

In particolare, da Febbraio a Giugno 2021, in piena terza ondata pandemica, abbiamo eseguito 120 interventi chirurgici per patologia erniaria in regime ambulatoriale di cui 105 ernie inguinali, 6 ernie crurali e 9 ernie ombelicali. I pazienti sono stati selezionati dalle nostre liste d'attesa iniziando con un rapido colloquio telefonico ai fini di una raccolta minuziosa dell'anamnesi e successivamente valutandoli clinicamente rispetto a due parametri (ASA e Indice di LEE) escludendo: le ernie inguino-scrotali, le recidive, le ernie bilaterali. L'intervento chirurgico è stato eseguito in anestesia locale e in assenza dell'anestesista che comunque si trovava reperibile per casi di necessità in una sala operatoria adiacente. Terminato l'intervento i pazienti sono stati dimessi a distanza di circa 4 ore. Non abbiamo osservato complicanze intraoperatoria o necessità di nuovo accesso. Solo in 3 casi abbiamo osservato la comparsa di ecchimosi scrotale a distanza di circa 7 giorni che non ha necessitate cure mediche. Non abbiamo osservato recidive nell'ambito di un follow up da 30 giorni a 6 mesi. A tutti i pazienti è stato sottoposto un questionario per valutare il gradimento in relazione al percorso realizzato e all'uso dell'anestesia locale e il 97,5% ha risposto positivamente.

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