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Editorial- Impacts of Pandemic

With the new academic year beginning in all countries, almost all of the universities have announced that they will provide online education in the fall semester. Besides the effects of the pandemic on education, it was inevitable that it would have unexpected consequences for research too, and from day one, researchers had to deal with these challenges. Laboratories have been closed, and all the non-critical experimental studies have been interrupted. The impacts of the pandemic on research studies are complex and multifaceted. Some of the problems we encounter in the short- term are related to publishing. The fact that there were retracted papers even in high-impact journals caused the spread of false information about Covid-19 and its treatment options. The disruption of the education of future researchers due to the laboratory lessons that cannot be done in all applied health sciences can be counted among these negative results. To prevent the long-term side effects of the pandemic, it is necessary to evaluate the sustainability and efficiency of online education and to discuss the development of new learning/teaching methods. Additionally, we need long-term plans for sustainable research systems.

Although vaccination studies continue at a rapid pace, and the situation varies on a country basis, we cannot predict how long the Covid-19 pandemic will last. This period may take a long time, and it is important to recognize new strategies for research activities. As we continue to work from home due to social distancing measures, webinars, seminars, online courses, and virtual congresses offer us great opportunities. It is perhaps much easier to reach researchers anywhere in the world with increased online accessibility. It is possible to use these virtual environments to expand our scientific community and create new collaborations.

And lastly, we are pleased to announce that we have recently published the new issue of our journal. We would like to thank all the esteemed authors and reviewers contributing to the issue. Stay safe

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Letter to Editor

14.09.2020

Dear Editor,

Several months have passed since a mysterious pneumonia was reported in Wuhan, China in late 2019. The novel virus, severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2), identified as the cause of the disease later named as coronavirus disease (COVID-19), has been spreading globally affecting the lives of millions of people and creating a devastating public health crisis. Without effective treatments and a vaccine, countries worldwide implemented various measures to slow down the spread of the virus and save lives by cancelling all kinds of activities, closing schools and even going into full lockdowns. The COVID-19 pandemic continues to threaten our lives and affecting almost everybody psychologically and/or physically. Efforts are being made to accelerate research on better diagnostic tests, drugs for early and late treatment and hopefully a vaccine. Vaccination has greatly improved public health during last century by reducing the burden of various infection diseases as well as eradication, as in the case of smallpox following successful mass vaccination programmes. Thus, the development of a safe and effective vaccine could offer great promise to quickly reach herd immunity in population and stop global COVID-19 crisis. Scientists across the world have been working hard to develop a successful vaccine after the identification of the virus genome, in January. Governments have been giving financial support to facilitate the development of one or more vaccines. Although the traditional approval process before having the vaccine available in clinic is long and requires critical evaluation of data, efforts are being made to speed up the development cycle of the COVID-19 vaccine. Different types of vaccines using different approaches based on the viral spike protein of coronavirus are being investigated to find at least one successful vaccine that could target the immune system to provoke potent and long-term immune responses. By mid-September, there are more than 150 candidate vaccines under investigation in preclinical research or clinical trials and three vaccines approved for early or limited use. However, as a formulation scientist, I believe that even though it may be possible to have a vaccine available in less than one year, this is very challenging and not easy. A strict evaluation of data must be made enabling the use of a safe and effective vaccine even by the elders who show an age-related decline of the immune system and individuals with secondary diseases who are more susceptible to experience severe side effects.

Although reports from clinical studies have shown the induction of neutralising antibody titers and encourage further development of vaccines, we do not know yet the level of antibodies needed to provide protection and how long the antibodies will last. Moreover, understanding of T cell and B cell immune responses to SARS-CoV-2 is increasing. The occurrence of side effects during clinical testing has been reported as well. Considering the fact that recent studies suggest that immunity of individuals following natural infection could fade within months, detailed attention must be paid on the formulation, any adjuvants used to enhance immune responses and vaccine delivery routes and regimen to achieve clinically successful long-term immunisation. Nevertheless, being optimistic about an optimal COVID-19

vaccine, the challenge remains to produce the vaccine in large scale and prepare a supply chain so that it can be accessible worldwide in a short time.

Our knowledge on COVID-19 disease transmission, diagnosis, treatment and prevention enhances with the ever-increasing number of publications and studies. However, we must not forget that as with many other potential drugs and vaccines reaching clinical trials there is no guarantee that any of candidate vaccines currently under development will prove to be successful. On a more personal level, we must all follow public health measures to prevent the spread of the virus and keep hope that solutions to COVID-19 global health emergency are found very soon.

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Research Article

Median Nerve Decompression Using Mini-Skin Incision in Carpal Tunnel Syndrome: Surgical Technique and Clinical Results

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Abstract: Compression of the median nerve at the wrist level is the most common entrapment neuropathy and known as Carpal Tunnel Syndrome. In this study, in patients who were operated because of Carpal Tunnel Syndrome; in order to reduce scar sensitization and pilar pain, surgical treatment was performed with a mini palmar incision the results and surgical technique were evaluated. A total of 103 patients (97 females, 6 males; mean age 49.4 years) who underwent surgery with mini-open skin incision in our clinic between 2014 and 2017 were evaluated retrospectively. Pain and functional evaluation of the patients after surgery were performed using visual analog scale (VAS) and Boston Carpal Tunnel Questionnaire (BCTQ). Patients were also evaluated for complications. The Boston Carpal Tunnel Questionnaire Scale and Visual Analog Scale showed statistically significant improvement ($p < 0.05$). In one patient, pain and immobility in the joints of the fingers due to not using hand, improved after physical therapy. No patient was reoperated. It was observed that the patients started their daily activities on the second day, and the employees returned to work in the second week. The distal mini-open surgical approach for treatment of Carpal Tunnel Syndrome has less scar tissue and tenderness on the incision side and allowing patients to return to their daily activities earlier.

Keywords: *Carpal Tunnel Syndrome; surgery; distal mini-open; surgical technique*

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1. Introduction

The compression of the median nerve at the wrist line is the most common entrapment neuropathy and affects 0.6-3.4% of the general population (Atroshi at al., 1999; de Krom at al., 1992). Although it is more common in the right hand, bilateral involvement is not uncommon (Buchberger et al., 1991). Carpal Tunnel Syndrome (CTS) was first described by Paget in 1854 (Paget, 1854). In 654 disease studies conducted by Phalen, 58% of patients were between 40-60 years old, 78% were between 40-70 years and CTS was 3 times more common seen in women (Phalen, 1966).

The carpal tunnel is a fibroosseous tunnel on the palmar face of the wrist. It extends from the flexion wrinkle of the wrist to the distal border of the tenars. Dorsal and lateral walls are formed by the carpal bones. Bone structures are surrounded by fibrous flexor retinaculum transverse carpal ligament (TCL) and become a tunnel. Flexor retinaculum; in the medial pisiform and hamate, adheres to the lateral scaphoid tuberositas and trapezium. Within this tunnel there are median nerve, musculus flexor digitorum superficialis (4 pcs), musculus flexor digitorum profundus (4 pcs) and musculus flexor pollicis longus tendons. The palmar cutaneous branch of the median nerve innervates the skin of the thenar region. The flexor separates from the proximal of the retinaculum. It penetrates the deep fascia and reaches the skin by watching the surface of the flexor retinaculum. Therefore, it is not affected by CTS. The motor branch of the median nerve exits under the flexor retinaculum or immediately distal. The distal border of the retinaculum reaches around the lumen and lateral lumbrical casing. The sensual branch carries the palmar face of the first 3 fingers and the radial half of the 4th finger. On the dorsal side of these fingers, the sensation of the distal interfalengeal part is carried by the median nerve (Frank, 1997; Greenberg, 1994; Rengachary, 1996).

The main complaint in CTS is the pain and paresthesia in the innervation area of the median nerve and the increase of these symptoms after the repetitive movements of the hands at night. There are conflicting opinions about the sensitivity and specificity of provocative tests performed during the examination (MacDermid and Wessel, 2004; Szabo et al., 1984). The definitive diagnosis is made by electrodiagnostic examination. In recent years, studies such as ultrasonography and magnetic resonance imaging have been reported to be useful in the diagnosis (Deryani et al., 2003; Koteyoglu and Gulbahçe, 2005).

2. Materials and Methods

A total of 103 patients (97 females, 6 males) who were diagnosed with CTS due to pain and numbness in their hands and operated with distal mini-skin incision in our clinic were evaluated retrospectively. The symptoms (numbness, pain) and the onset of symptoms were recorded as months. The severity of the symptoms were assessed day and night. The presence of Tinnel test, Phalen test, and thenar atrophy were evaluated. The Tinnel test was considered as positive if there was paresthesia and feeling of electrification in the sensory area of the median nerve as a result of percussion on the carpal tunnel with a reflex hammer. The Phalen test was performed by holding the wrist in 90º flexion for one minute with the dorsal faces in contact with each other. All surgical procedures were performed in the same center and by the same physician. Pain and functional evaluation of the patients after surgery were performed using VAS and BCTQ scale. Patients were also evaluated for complications.

Statistical analysis; SPSS version 10.0 (SPSS Inc, Chicago, IL, USA) statistics program was used for Windows. Comparisons between groups were made using Anova and Kruskal Wallis variance analysis. Data are given as numbers with mean and standard deviation. $P < 0.05$ values were considered statistically significant.

2.1. *Surgical Technique*

All patients were operated with lidocaine or bupivacaine local anesthesia without a tourniquet. A distal 1-1.5 cm mini-incision was made using the horizontal line parallel to the medial face of the ring finger

in the wrist and hand supine position (Figure 1). The skin was opened with mini-retractor, subcutaneous tissue was passed through blunt dissection and palmar aponeurosis was opened and blunt dissection was performed. With the help of a mini-clamp with a curved tip, the ligament was suspended and a transverse carpal ligament was cut with a 15 number scalpel. The distal end of the median nerve in the tunnel was reached. The rest of the transverse carpal ligament was cut with tissue scissors (Figure 2). After the control of the tunnel opening with the help of dissecters, the skin was closed with 3.0 prolene after the control of bleeding (Figure 3). The average operation time was 15 minutes. All patients were discharged on the same day. All patients received 1 g of cefazolin sodium 30 minutes before the operation for prophylaxis. Patients hand wrapped with an elastic bandage and they were put on neck sling for 2 days. On post-operative day 3, the dressing was opened and the spray was left open. On the 10th post-operative day, sutures were taken and exercise with soft ball was recommended.

Figure 1. The incision line parallel to the medial of the ring finger, the mini-distal 1-1.5 cm skin incision and the mini-skin retractor.

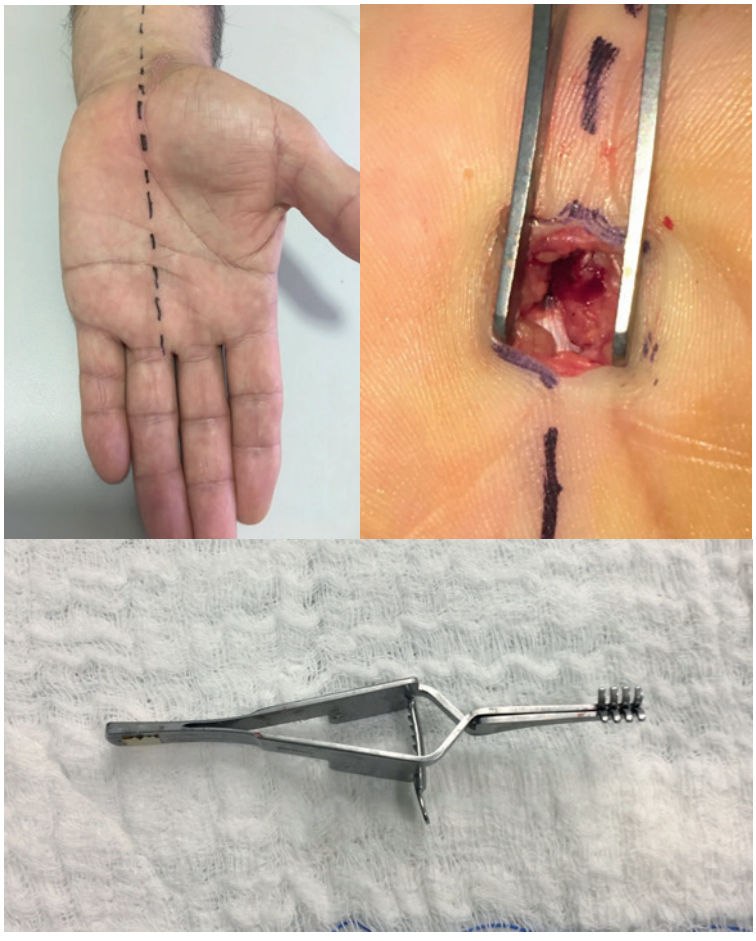

Figure 2. Decompressed median nerve

Figure 3. Skin incision of 1-1.5 cm closed by suturing with 3/0 Prolene

3. Results

Of 103 patients, 97 (94.1%) were female and 6 (5.9%) were male. The mean age of the patients was 49.4 years (21-81). Only one patient's dominant hand was the left hand. Therefore, it was not possible to establish a statistical relationship between the dominance of the left or right hand in causing CTS. A total of 137 surgical procedures were performed. The mean duration of symptoms was 50.7 months (1-144 months). There were numbness in the hands of 73 patients, pain with numbness in 27 patients and weakness in 3 patients. Symptoms were more severe at night in 32 patients (31.1%). The Tinnel test was positive in 64 patients (62.1%) and the Phalen test was positive in 88 patients (85.4%). In 23 patients (22.3%), various degrees of weakness were detected in the hands. Muscle atrophy was found in 2 patients (1.9%). All patients had moderate or advanced conduction slowing in the median nerve detected by electromyelography (EMG). In patients with surgery, there was no median nerve injury, ulnar vessel-nerve injury, superficial palmar arc injury and motor branch injury. Pain and immobility occurred in the finger joints due to not using a hand in a patient. It was treated with physical therapy. No patient was reoperated. Results were statistically evaluated with preoperative and postoperative VAS and BCTQ scales. Preoperative VAS mean scores were 7.88±2.01 (6-9), while postoperative 1.78±0.93 (0-4) were found and statistically significant ($p=0.002$, $p<0.05$). Preoperative BCTQ scale mean score was 28.01±10.33 (22-37) while it was 16.68±5.76 (12-23) postoperatively and was statistically significant ($p=0.003$, $p<0.05$) (Table 1).

Table 1. Comparison of the preoperative and postoperative results according to the VAS and BCTQ scales.

	Preoperative	Postoperative	p
VAS	7.88± 2.01 (6-9)	1.78± 0.93 (0-4)	0.002
BCTQ	28.01± 10.33 (22-37)	16.68± 5.76 (12-23)	0.003

4. Discussion

The compression of the median nerve, which is considered to be the prototype of entrapment neuropathies, is seen common between 40 and 60 years of age. It is seen 3-10 times more in women. It is reported that it develops more frequently on the right hand (Gök and Yalçın, 1997; Gündüz et al., 2003; Padua et al., 1997; Phalen, 1966; Szabo and Madison, 1992). Similar to the data in the literature, the mean age of the patients in our study was 49.4 years. However, the female/male ratio (16.1) was higher than the literature. In accordance with the literature, more operations were performed on the right hand side than the left side. Only one of 103 patients had a dominant left hand. There was no correlation between the dominance of left or right hand to cause CTS. Therefore, it was not possible to establish a statistical relationship between the dominance of the left or right hand in causing CTS.

The Tinnel and Phalen tests from the provocative tests are widely used. However, conflicting results have been reported about the sensitivity and specificity of these two tests. In the literature, the sensitivity of the Tinnel test is reported to be between 9-89% and the Phalen test is between 10-74.5% (Gündüz et al., 2003; Kuhlman and Hennessey, 1997; MacDermid and Wessel, 2004; Szabo et al., 1984). Tinnel test was

62.1% and Phalen test was 85.4% in our patients. In the light of these values, we think that the positive Phalen test is more meaningful in patients undergoing surgery.

The purpose of surgery is to eliminate the pressure in the carpal tunnel by cutting the transverse carpal ligament (Greenberg, 1994; Rengachary, 1996). Surgical outcome is worse in patients presenting with loss of strength and atrophy. Surgery can be performed with classical open, endoscopic and minimally invasive techniques. Classical open surgery is the standard method for surgical decompression of the median nerve in the carpal canal. It is more effective and safer than other surgical methods. However, with this method, the rate of hypertrophic or painful scar can be higher and duration of returning to work and daily activities may be longer. Endoscopic and minimally invasive methods are used to reduce these problems. With these surgical procedures, faster return to daily life or work and less scar formation have been reported. However, complications such as incomplete decompression and tendon or neurovascular injury are higher (Cokluk et al., 2003; Schmelzer et al., 2006).

Numerous studies have been conducted to investigate whether minimally invasive procedures are performed proximally or distally of the transverse carpal ligament. Revealing the palmar cutaneous branches of the median and ulnar nerve with detailed anatomical studies, the negative aspects of the standard incision, the long learning process and cost of endoscopic surgery; directed surgeons to mini incisions (Lee et al., 1992; Martin et al., 1996).

In their anatomical study, Martin et al. identified the palmar cutaneous branch of the median nerve in the proximal palmar region in all 25 hands, and the palmar cutaneous branch of the ulnar nerve in 24 hands. They reported that there was no safe area for the standard incision in the proximal palmar region. They reported that the incisions made from the distal palmar region were safer due to the high density of nerve in the proximal palmar region (Martin et al., 1996; Özcanlı et al., 2010).

Abouzahr et al. found a superficial palmar arch injury in one of the 28 hands in a cadaveric study with a mini-incision through the wrist flexion line (Abouzahr et al., 1995). In another study, it was reported that there was no vessel-nerve injury in the loosening of a 1-cm incision made by TCL distal in 104 of the 104 patients (Klein et al., 2003).

Bromley reported that the technique applied with a mini-incision distal to the TCL described reduced the scar formation and sensitivity and shortened the process of return to work. Lee and Strickland reported a successful result with a tool-assisted distal palmar incision at a rate of 92.2% (Lee and Stickland, 1998; Schmelzer et al., 2006). Bagatur reported that the most common finding in the revision of unsuccessful CTS surgeries was the inability to adequately release distal to the TCL. Specifically, it is difficult to see and release all of the TCL for the incisions beginning and ending at the proximal of the wrist flexion line; suggested that these incisions should not be used in CTS surgery (Bagatur, 2002). Bal et al. Compared the distal and proximal mini incisions in their study. Reported a lower incidence of morbidity in the distal incision group, although there was no difference in long-term results (Bal et al., 2008).

The distal mini-open surgery performed in 137 cases in 103 patients (some cases for both hands), and according to our results, the BCTQ scale and VAS showed statistically significant improvement ($p < 0.05$).

About 1 cm skin incision increased patient satisfaction. The absence of postoperative pilar pain in patients is also an important advantage of this technique. It contributed to patient satisfaction. The absence of significant complications such as median nerve injury, ulnar vascular-nerve injury, superficial palmar arc injury and motor branch injury is the result of careful surgery, although the surgical technique has the advantage. One of the advantages of this technique is that the patients can use their hands day after the surgery and return to work in a short time.

Conclusion

We think that distal mini-open surgery is a safe and successful method in CTS surgery because of less scar tissue and tenderness on the incision, returning to daily activities in a short time after the surgery, low rate of complications and successful clinical results. We believe that minimally invasive procedures should be performed distally from the transverse carpal ligament.

Conflict of Interest

The author declares that there is no conflict of interest.

Ethical Approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee (Institutional Review Board of Medipol University 28.05.2020/423) and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Informed Consent

Informed consent was obtained from all individual participants included in the study.

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Review

SARS-CoV-2 Pandemic in Nigeria: The Impact on Age and Sex Distributions

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Abstract: The paper was on the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic of Nigeria as well as the effect on age and sex distributions. The assessment of this particular effort was based on the data generated on confirmed deaths, and active cases by the Nigeria Center for Disease Control (NCDC) between February and June 2020. The information as of June 2020, revealed that the death cases was 506, even though the confirmed active cases figure was 19808. The confirmed cases for the states followed this particular order: Lagos, FCT, Kano, Rivers, and down to Kogi (probably the least figure recorded), while death rates followed this order: Lagos, FCT, Edo, Oyo, and down to Adamawa State (probably the least figure). The sex distributions of SARS-CoV-2 of the confirmed cases showed that male had a higher number in comparison to female, while in the age distributions, it was noticed that the age groups most affected were: 21 - 30, 31 - 40, 41 - 50, 51 - 60 for each male and female. Approximately 4% (male) as well as 5% (female) had been captured for ages under 10 years old. The sex and age distributions found in Covid-19 vulnerability depict the value of a more clear understanding of the effect of age and sex on incidence as well as case fatality of the virus and also in order to tailor therapy based on age and sex.

Keywords: *SARS-CoV-2; age; confirmed cases; NCDC; WHO; UNDP*

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1. Introduction

Coronavirus disease-19 (Covid-19) is caused by a coronavirus. It is an infectious disease which is tormenting the entire universe. Any infected person normally has respiratory problem, but this is usually overcome without special treatment. The most vulnerable are the old and people having respiratory problems, cancer, and diabetes (WHO, 2020a). As of 27th June 2020, 9,653,048 confirmed cases including 491,128 deaths worldwide was reported by World Health Organization (WHO) (WHO, 2020). COVID-19 (SARS-CoV-2) causes severe respiratory disease. From its inception till now, the pandemic has been experienced by over

196 countries (Coronavirus Resource Center, 2020; WHO 2020b). Two-thirds of the death happened in Europe (Gebhard et al., 2020). Presently, there are no known antiviral treatments to combat this menace, but there are many on-going trials using remdesivir, lopinavir-ritonavir, a combined protease inhibitor, chloroquine/hydroxychloroquine, colchicine, and tocilizumab, an IL-6 inhibitor (Gebhard et al., 2020; Roche Media, 2020).

According to UNDP (2020), Covid-19 is much more than a health crisis. It has devastating effects on the social, economic, and politics of each county of the world. In an urgent response to the pandemic, the United Nations (UN) has provided US$2 billion aids to assist the most vulnerable people and economies. Many fundamental lessons have been learning from this crisis which include restricted movements, wasted lives, lack of security, interdependent, health, environmental, economic, political, and social breakdowns. The pandemic is leaving an indelible mark worldwide which can never be forgotten.

Globally, the issue of gender has not been handle with levity. Much seriousness has been on this issue, for an example, the UN Women, the African Union, Economic Commission for Africa, and African Ministers for Gender and Women's Affairs met in May 2020 online to discuss on the pandemic (Covid-19) with a reference on the mitigation of the impacts of the crisis on women and girls (UN, 2020). The meeting aimed to address challenges women and girls in Africa is experiencing due to the pandemic while informing response and recovery planning and financing for better addressing the differentiated impact of the pandemic on women and girls in the continent. No doubt, Covid-19 outbreaks have different effects on women and men. On this premise, the globally reported cases are carried out to reflect age and sex disaggregation (UN Women). According to WHO (2020c) preliminary data, there was relatively even distribution of infections between women (47%) and men (51%), with some variations across age groups.

Generally, worldwide, women dominate the number of staff engaged in the health sector for this reason they are more likely to be diagnosed with Covid-19, but records show that higher death rate was in men compared to women (Global Health 5050, 2020). Although the interaction of sex and age by different countries were not provided publicly, the few records available depicted that cases of fatality vary significantly by region (Gebhard et al., 2020). In detailed reports of confirmed Covid-19 cases in Italy, China, Spain, France, Germany, and Switzerland, there are no major sex differences (men and women) in the cases from these countries but the reports show that there are higher incidences in men in the older age groups (Chene, 2020; Federal Office of Public Health FOPH, 2020; Robert Koch Institute, 2019). Reports from Switzerland and Germany have recently reported incidence rates (cases per 100,000 inhabitants by age and sex), which confirm an increased disease incidence in men above 60 years old (Federal Office of Public Health, FOPH, 2020; Robert Koch Institute, 2020). The death rate is highest in age 80 years and above (14.8% in China, 20.2% in Italy) (Onder et al., 2020; Wu, et al., 2019). Existing data shows that mortality rate caused by Covid-19 increases significantly with respect to age and over time. From the data, the rate is more prone in men than women in all age groups. The cases in Germany and other countries confirmed this (Ravi and Kapoor, 2020).

The fatality case of children is minimal, the Chinese Center for Disease Control and Prevention examined 72,314 cases the outcome showed that children of less that 10 years old were infected (<1%) with the virus (Wu and McGoogan, 2020). In Wuhan, China, it was reported that over 12% children of ages 1day to

15 years out of 1391 children tested positive to SARS-CoV-2 infection between January 28 and February 26, 2020. Over 60% of the kids were male, while 39.2% were female. The age distribution that was mostly affected were, 6-10 years (33.9%) and 11-15 years (24.6%) (Lu et al., 2020).

In light of the above and concerning the impact of the SARS-CoV-2 on a global scale, this paper fills a gap in the understanding of its impartation in developing countries. This paper is an evaluation of the impact of the virus in Nigeria. The paper dealt with the effects on age and sex distributions.

2.Materials and Methods

Nigeria is a Federal Republic comprising 36 states and the Federal Capital Territory (FCT), where the capital, Abuja, is located (Figure 1)(Course Hero, 2020). Nigeria is the most populous country in Africa with a projected population of 206, 630, 269 (Course Hero, 2020; UN, 2017) with Lagos as the largest city and the seventh most populous country in the world, Nigeria has the third-largest youth population in the world, after India and China, with more than 90 million of its population under the age of eighteen (Course Hero, 2020; Library of Congress, 2008). The area is 923,769 km^2, density (218/km^2), and a time zone of UTC+01:00 (WAT). Nigeria a multinational state consists of over 250 ethnic groups who speak over 500 languages. The three common ones are Hausa, Igbo, and Yoruba, but the official is English (Course Hero, 2020).

The private sector and the government (local, state, and federal) of Nigeria discharge all the duties in Health care delivery using community-based methods (Eldis, 2006; Rais, 1991), which has increased accessibility to more efficient and equitable provision of services. The health services render in Nigeria have positive effects thereby reducing or total eradication of Lassa fever, malaria. In Nigeria, over half of the citizen do not have access to potable water. This greatly affected them thereby reducing the life expectancy to average of 52.62 years. As of 2010, the infant mortality is 8.4 deaths per 1000 live births *(*United Nations Population Fund, 2011).

Nigeria is one of the countries affected by Covid-19. The virus has affected the health, economy, social, religion, and politics of the populace. To determine the impact of the SARS-CoV-2 pandemic in Nigeria, this paper has relied on the data released by The Nigeria Center for Disease Control (NCDC) on their website between February 29th and June 20th, 2020. The data gather includes confirmed, active, discharged, and death cases. The information gathered was statistically (pie chart, and basic descriptive statistics) analyzed using excel 2013 version. The results generated were compared with the WHO and other global reports.

Figure 1. Map of Nigeria showing 35 states and FCT affected by Covid-19. Source: Adebowale (2020)

3.Results

The descriptive summary of the details of discharged, confirmed, active and death cases are actually depicted in Figure 2. The minimum as well as maximum of all of the parameters are 0-6718, 1-85375, 0-12584, and 0-506 respectively. At 95% confidence interval the mean as well as median of the discharged cases are 1279.5 and 230.5; confirmed cases (4340.5 and 1227.5); active (4300.4 and 2154.5), and deaths (123.90 and 37.5) respectively. The boxplots are skewed to the right. Table 1 depicted the reported cases for sates and capital cities from the month of February to June 2020. From the table, it was observed that Lagos, FCT, Kano, Rivers, and Oyo States topped the higher confirmed cases with 8407, 1549, 1184, 866, and 860 respectively, while they had discharged cases in this order 1436, 475, 712, 356, and 282 respectively. Only Kogi State had no death reported.

Table 1. Reported cases from states and capital city between February and June 2020

States	Confirmed Cases	Discharged Cases	Deaths	Total Active cases
Lagos	8407	1436	123	6848
FCT	1549	475	28	1046
Kano	1184	712	50	422
Rivers	866	356	30	480
Oyo	860	282	9	569
Edo	779	161	31	587
Ogun	623	358	15	250
Kaduna	552	286	10	256
Delta	501	124	17	360
Borno	466	353	31	82
Gombe	451	226	14	211
Bauchi	447	322	11	114
Katsina	426	233	22	171
Jigawa	317	191	6	120
Ebonyi	234	137	0	97
Abia	221	93	3	125
Plateau	220	114	5	101
Imo	205	21	3	81
Nasarawa	184	88	6	90
Kwara	180	122	6	52
Bayelsa	155	29	9	117
Sokoto	135	115	14	6
Ondo	134	42	16	76
Enugu	126	29	5	92
Zamfara	76	71	5	0
Kebbi	67	40	6	21
Anambra	66	51	9	6
Niger	66	33	2	31
Akwa Ibom	65	40	2	23
Yobe	56	45	8	3
Osun	54	46	4	4
Adamawa	42	37	4	1
Benue	39	12	0	27
Ekiti	54	28	2	4
Taraba	18	10	0	8
Kogi	3	0	0	3
Total	19808	6718	506	12584

Source: NCDC 2020

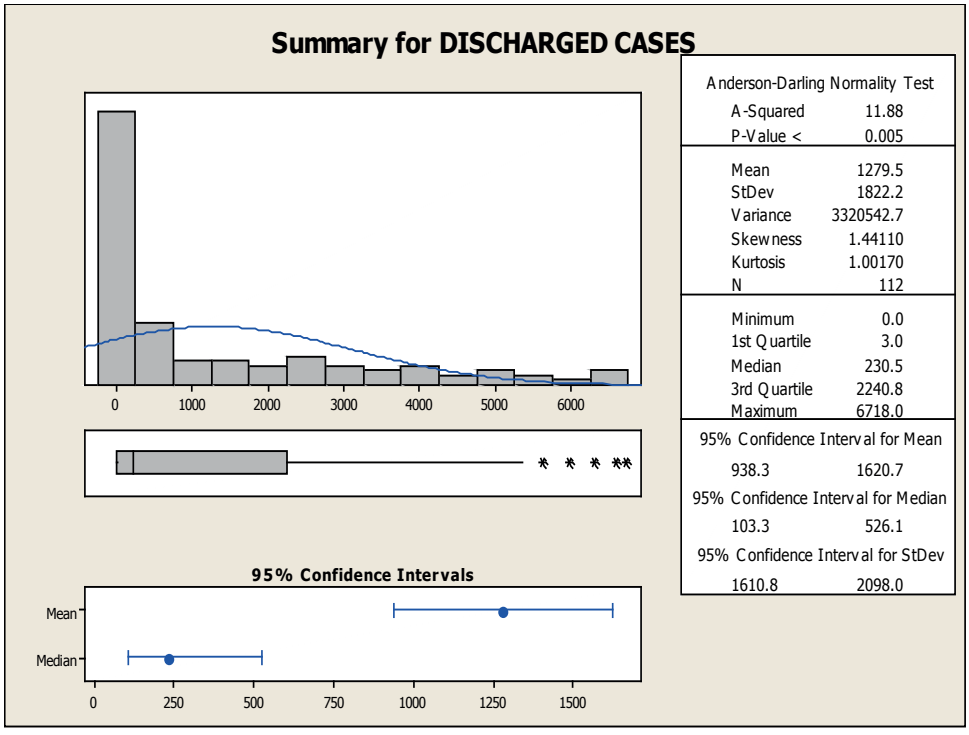
Figure 3 showed the gender distributions of confirmed cases. The figure showed that men were the most affected with 51% and female just had 49%. Table 2 showed the comparison of death and confirmed cases of Nigeria with other countries. Out of the 10 countries compared with Nigeria, six of the countries showed, like Nigeria that men were highly affected than female. Only The Netherlands reported 50% (men) and 50% (female). Figure 4 showed the age mostly affected was 31-40 years for both male and female. The boxplots of all the cases indicate they are non-symmetrical since they are skewed to the right. This suggests that there was large distributions (variations) between the minimum as well as maximum. The larger distributions are established with the standard deviations and also the variances of every one of the cases.

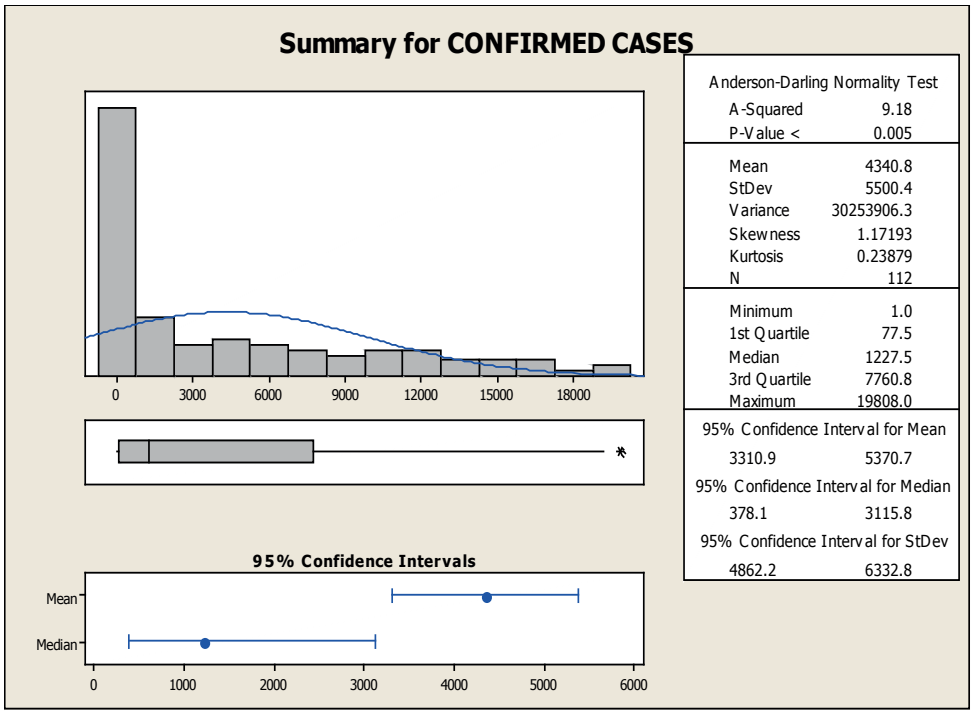
Table 2. Comparison of Nigeria confirmed and death cases with other countries

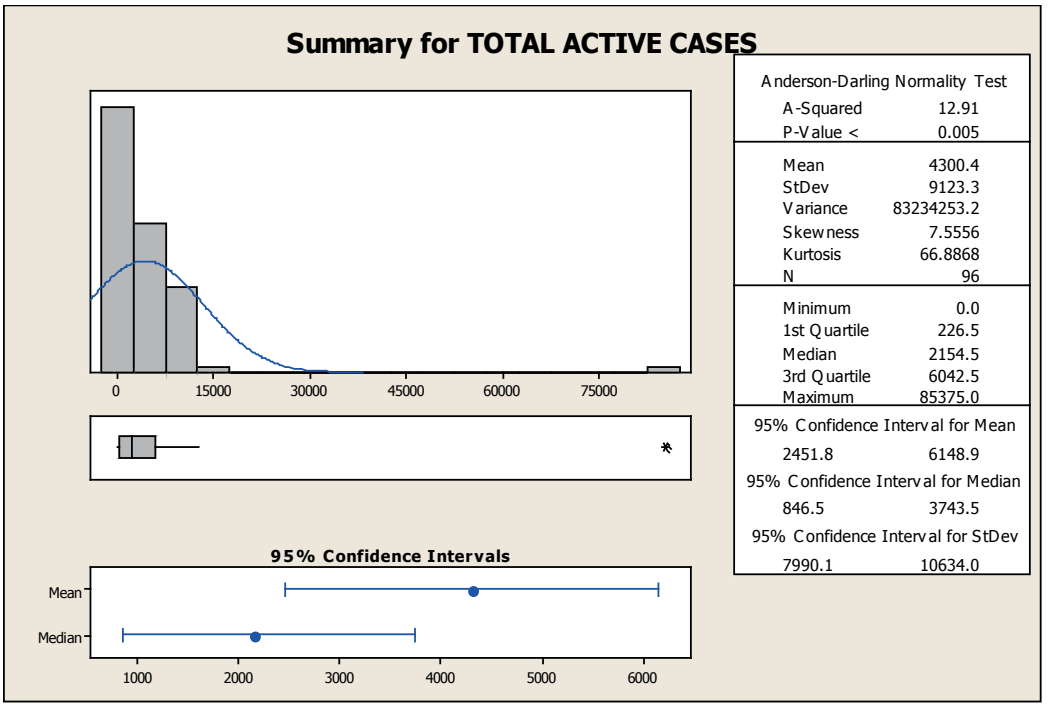
Countries	Confirmed Cases		Deaths	
	Male	Female	Male	Female
Nigeria	51	49	N/A	N/A
China	51	49	64	36
Iran	57	43	59	41
Portugal	45	54	59	31
Sweden	52.5	48	58	42
Belgium	47	52	58	41
Austria	51	49	N/A	N/A
Australia	51.4	49	N/A	N/A
The Netherlands	50	50	61	39
Canada	51	49	N/A	N/A
France	47	53	58	42

Source: Gebhard et al. (2020)

Figure 2. The descriptive summary of the data of discharged, confirmed, active and deaths cases






Summary for TOTAL ACTIVE CASES
0
15000
30000
45000
60000
75000
95% Confidence Intervals
Mean
Median
1000
2000
3000
4000
5000
6000
Anderson-Darling Normality Test
A-Squared 12.91
P-Value < 0.005
Mean 4300.4
StDev 9123.3
Variance 83234253.2
Skewness 7.5556
Kurtosis 66.8868
N 96
Minimum 0.0
1st Quartile 226.5
Median 2154.5
3rd Quartile 6042.5
Maximum 85375.0
95% Confidence Interval for Mean
2451.8 6148.9
95% Confidence Interval for Median
846.5 3743.5
95% Confidence Interval for StDev
7990.1 10634.0

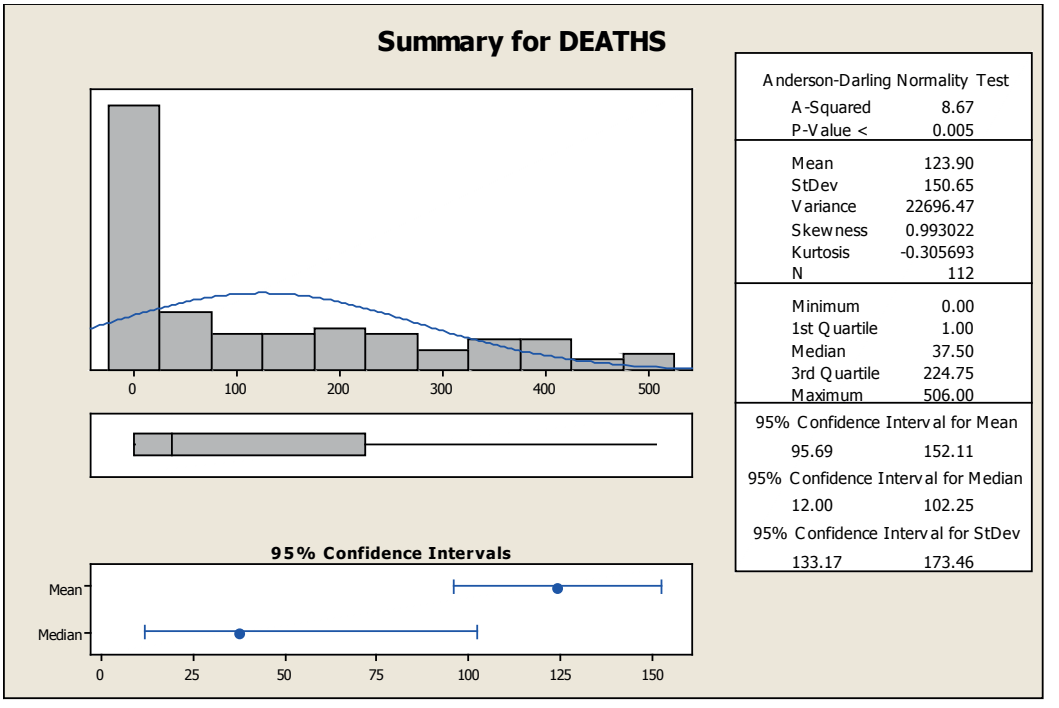
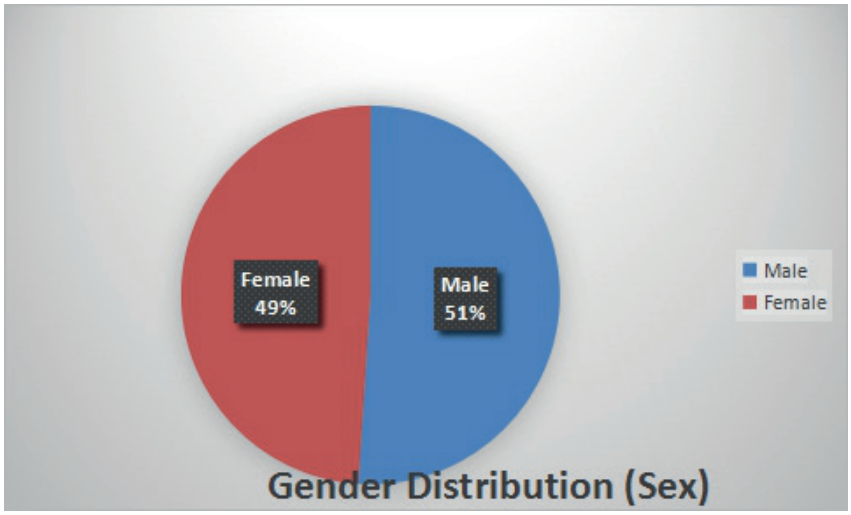
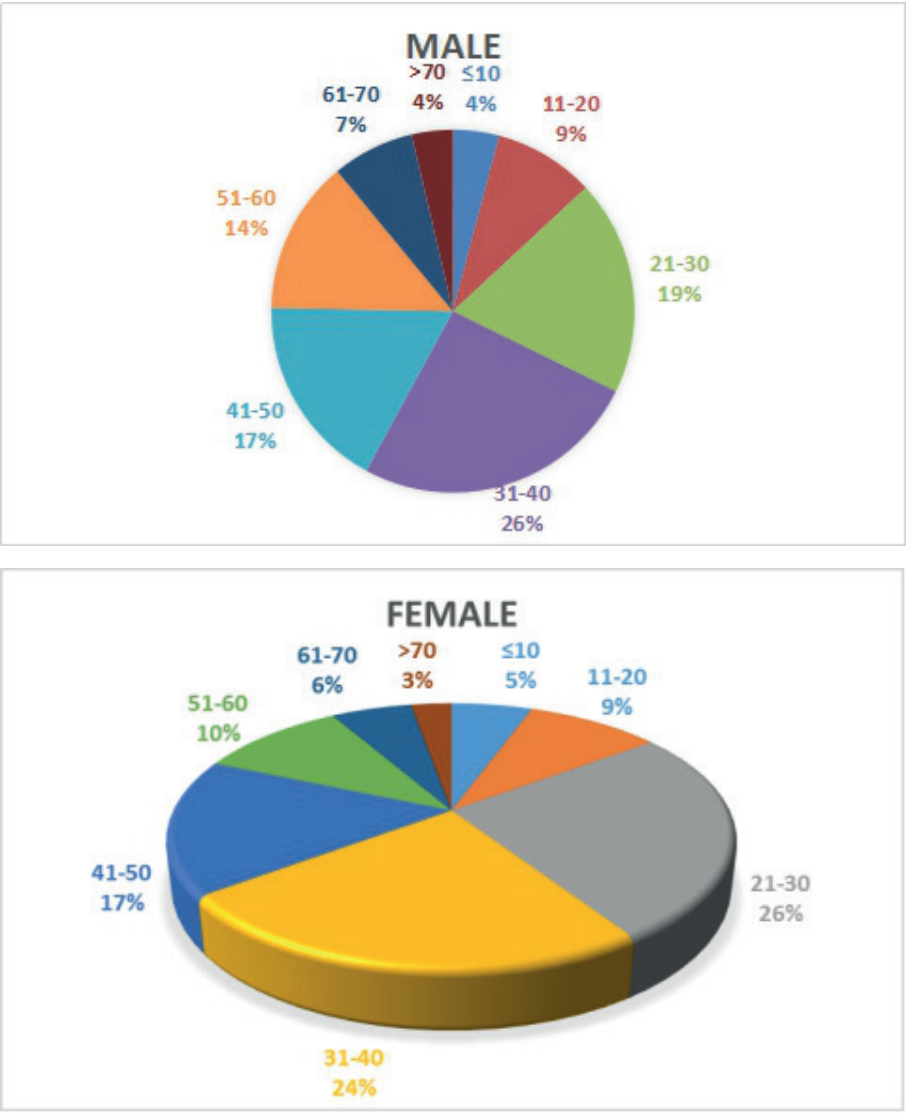

Summary for DEATHS
0
100
200
300
400
500
95% Confidence Intervals
Mean
Median
0
25
50
75
100
125
150
Anderson-Darling Normality Test
A-Squared 8.67
P-Value < 0.005
Mean 123.90
StDev 150.65
Variance 22696.47
Skewness 0.993022
Kurtosis -0.305693
N 112
Minimum 0.00
1st Quartile 1.00
Median 37.50
3rd Quartile 224.75
Maximum 506.00
95% Confidence Interval for Mean
95.69 152.11
95% Confidence Interval for Median
12.00 102.25
95% Confidence Interval for StDev
133.17 173.46

Figure 3. Gender distribution of SARS-CoV-2 confirmed cases in Nigeria



Source: NCDC 2020

Figure 4. Age and sex distributions of confirmed cases



Source: NCDC 2020

4. Discussion

In a comparison of results of the total confirmed cases with African countries, Nigeria has the second high values (19808 individuals), after South Africa with 87715 individuals while others follow: Ghana (13203), Algeria (11504), Cameroon (10638), Cote d'Ivoire (6874), Senegal (5639), and Democratic Republic of the Congo (DRC) (5476). The total death cases reported as at 20 June 2020, shows that South Africa has probably the highest figure of 1831 followed by Algeria (825), Nigeria (506), Cameroon (282), DRC (121), Kenya (119), Mali (108), as well as other with less than 100 (WHO 2020d).

Also, the cumulative case infection rate for Nigeria is lower compared to the outcomes of many nations outside Africa. For instance those of USA (2,172,212), Brazil (978,142), Peru (244,388), Chile (231,393), Mexico (165,455), Canada (100,220), Colombia (60,217), Argentina (37,510), Dominican Republic (25,068), Panama (23,351), and Bolivia (21,499). The figures captured for these areas are far higher compared to the ones in Nigeria (between 1 and > 200).

The reasons the outcomes differ for various countries might be because of the following assumptions: firstly, Nigeria and lots of the other nations have acted slower compared to others in applying stricter steps as lockdowns as well as the public willingness to comply with stringent measures, culture, and values (Oliver, 2020a). For a lot of places, like Japan as well as Sweden, the rapid launch of solid interventionist policies is actually restricted by their constitutions (Oliver, 2020a). Secondly, in a number of countries, the announcement of an upcoming lockdown led to considerable human movement (e.g. men and women returning back to their hometowns. These moves could be one of the causes for the spreading of the virus within many countries. Thirdly, in several places of the globe, Nigeria inclusive, there continues to be a dearth of facemasks, personal protective equipment (PPE), respirators as well as ICU beds to be used by Covid-19 patients. Without these accessible definitely, a lot of individuals are going to contract the virus. Fourthly, many countries have no accurate information, and poor understanding about the number of individuals who have been infected with the virus, and exactly how many people have died in residences as well as the community and homes from Covid-19 (Oliver, 2020b). Due to this, the data are going to be defective. Working with defective details might have an effect on remedies, planning, and treatments. Non-availability of data (quality, accuracy, completeness, consistency, timeliness, and validity) is very likely the primary reason why the true death toll is simply not reflected in the statistics. Fifthly, comorbidities are actually another reason the death toll in the developing world ought to be greater. Individuals with hypertension (21%), diabetes (10%), cardiovascular disease (8%), and respiratory system disease (1%) are actually prone to SARS-CoV-2. Based on Schellekens and Sourrouille (2020), all these are extremely common in the developing world. Sixthly, environmental elements for instance temperature, population density, sanitary conditions, and quality of health care are another factors that can bring about differences in data generated by different countries during the pandemic (Schellekens and Sourrouille, 2020).

Kretcmer (2020) found that nations as well as continents which have more youths tend to be more likely to record low cases of death as the elderly tend to be more predisposed to the virus attack as opposed to the younger ones. A good example is the situation of Africa which has a significantly younger population compared to Europe. This points out the reason behind the few number confirmed deaths (Kretcmer, 2020). Once again, there are striking variations of the spread of Covid-19 between rural and urban areas

within a nation. The denser the population of the people in a country, the more the transmission to taking place (Kretcmer, 2020).

Figure 3 shows the gender distribution of confirmed cases in Nigeria. The result shows that out of the recorded figures only 51% were males while females contributed 49% to the total figures. The epidemiological data from the 2002–2003 SARS epidemic and recent Middle East respiratory syndrome outbreak confirmed that males were mostly affected meaning that there is sex-dependent differences in the pandemic outcomes (Channappanavar et al., 2020; Ravi and Kapoor, 2020). To buttress the sex differences, Channappanavar and his team researched on mice (male and female) of different age groups by infecting them with SARS-CoV with a view of finding out their reactions to the virus. The outcome confirmed that the males were more prone to virus infection when compared with age-matched females and the infection increased with age increase.

Table 2 shows the comparison of Nigeria confirmed cases with some parts of the world. It is observed that China, Iran, Sweden, Austria, Australia, and Canada (male and female) compared with Nigeria results (51 and 49, 57 and 43, 52.5 and 48, 51 and 49, 51.4 and 49, and 51 and 49) respectively. In the cases of Portugal, Belgium, and France did not agree with that of Nigeria, the opposite was the case ie female was higher than male (54:45, 52:47, and 53:47) respectively. The reason for these differences could be due to the biological and behavioral nature of women in the countries. Mainwhile, The Netherlands' result was 50% male and 50% female. In the cited literatures, there were no records of deaths for Nigeria, Austria, Australia, and Canada, but the available information for China, Iran, Portugal, Sweden, Belgium, France, and the Netherlands showed that deaths recorded were higher in males than females. The death rates announced in China, Italy, Spain, France, Germany, and Switzerland are generally homogeneous and extend between 1.7–1.8. This backs the view that a predictable natural marvel is working, representing the higher death rate in men (Emergency Response Epidemiology Team, 2020; Istituto Superiore di Sanità, 2020).

From this paper, it is observed that males are susceptible to the virus than females. Several reasons including biological and behavioral reasons may explain this observation. The first reason may be because men are smokers. Men are into cigarettes, marijuana, and other forms of smoking. For example in China, men (adults) and women do smoke, with a ratio of 54% and 2.6% respectively (Liu et al., 2017; Ravi and Kappor, 2020). It is reported that about 41% of South Korean, Spanish, and US men are smokers, while their women smoke less (6%), but the difference in smoking habits between genders in Germany is not much (The World Bank, 2020). Secondly, reports indicate that circulating levels of angiotensin-converting enzyme (ACE2) are more in men who are healthy, diabetic, and those having renal problems as against women (Patel et al., 2013). Data show an association between comorbidities (chronic lung disease, hypertension, and cardiovascular disease, and severity of Covid-19 (Global Health 5050, 2020). Globally, these morbidities are higher among men than women (GBD 2017 Disease and Injury Incidence and Prevalence Collaborators, 2018), except for older age groups. Thirdly, generally and biologically, the males and females response to many RNA and DNA virus infections are different (Channappanavar et al., 2017; Klein and Flanagan, 2016), the males has low immune responses that makes them susceptible to different infectious agents (Garcı´a-Go´mez et al., 2013). Although the epidemiological data from severe acute respiratory syndrome (SARS)-CoV and the Middle East respiratory syndrome (MERS)-CoV outbreaks show males are bias in disease susceptibility (Alghamdi et al., 2014; Karlberg et al., 2004).

Figure 4 depicts the age and sex distributions of cases reported during the outbreaks of SARS in Nigeria, despite a high confirmed case of SARS in the adults (male and female), there were little or no figures for the pediatric patients. Similar reports from across China in February 2020, gave the statistics as 416 (0.9%) in <10 years children (Zhang, 2020). As time goes on, the virus spreads to the family especially the adult members. In this case, there was the possibility of intra-familial transmission especially from the adults to the children. With the increase in infected adults, there will also be increase infections in children and young adults (Cao et al., 2020).

The confirmed cases occurred in children and the older people. This shows that Covid-19 cases cut across all age groups, which varied with time. Figure 4 shows that younger age groups have low infection rates.

Epidemiological studies have shown that case fatality rates (CFR) are more affected by men than women (Karlberg et al., 2004; Leong et al., 2006). Similarly, data from recent MERS outbreaks showed high incidence and CFRs among men (Alghamdi et al., 2014). Alghamdi et al. (2014) and Karlberg et al. (2004) revealed that sex-dependent increase in disease severity after pathogenic CoV infection was more pronounced with advancing age. Throughout the world, women and girls are at risk of the pandemic and for this singular reason, they need to be protected. From experience, they are prone to violence during disasters and crises. During quarantine or stay-at-home measures, women and children who live with violent are exposed to danger (Linde and Gozalez, 2020). Again, about 70% of the women and girls make up the staffs of health and social-services globally in this regard, they need to be empowered providing more resources to them for carrying out their responsibility for domestic work and caring the more for infected family members, this makes them susceptible to more risk. Globally, women are not economically buoyant as men this makes them economically less secure in the labor market, especially during the lockdown (Linde and Gozalez, 2020).

Conclusion

The study was on the impact of Covid-19 also known as SARS-CoV-2 on age and sex distributions in Nigeria. The data on confirmed, discharged, deaths, and active cases used for the study was supplied by the NCDC. The results as at June 2020, revealed that the death cases was 506, while the confirmed was 19808. The confirmed cases recorded for the states were highest in Lagos, while the death rate was least in Adamawa. The sex distributions of SARS-CoV-2 of the confirmed cases showed that male had a higher number in comparison to female, while in the age distributions, it was observed that the age groups most affected were: 21 - 30, 31 - 40, 41 - 50, 51 - 60 for both male and female. The higher values reported for males than females could be deduced to the attitude of men like smoking, susceptibility to viruses, circulating levels of ACE2, and many other factors. The age and sex distributions observed in Covid-19 depict the importance of understanding of the impact of age and sex on incidence and case fatality of the virus and to tailor treatment according to age and sex.

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Conflict of Interest

The authors declare no conflict of interest.

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Case Report

A Technique for Fabricating Single Screw-Retained Implant-Supported Interim Restoration by Using the Crown of Extracted Tooth

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Abstract: At the esthetic anterior region, horizontal root fracture is a complex and subversive situation for both the patient and dental practitioner. Due to enabling rapid prosthetic rehabilitation, decreasing treatment time, morbidity and the number of surgical procedures required, immediate implantation of a single implant may be a more preferable treatment option. In the presenting treatment modality, a single implant-supported provisional crown was produced right after extraction and implant placement surgery, using the patients extracted tooth crown. The use of the crown part has substantially fulfilled the patient's expectations both aesthetically and psychologically. Besides fixed provisional crown restoration advanced biologically and esthetically convenient soft tissue emergence for the permanent restoration.

Keywords: *Temporary dental restoration; single-tooth dental implant; trauma; dental esthetic*

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1. Introduction

The most common reasons of missing anterior teeth are tooth and root fracture, extensive tissue damage due to caries, advanced periodontitis and trauma. For dentists, rehabilitation of teeth loss in the aesthetic area is rather difficult (Martin et al., 2006). Implant supported fixed prostheses are preferred to conventional bridges and removable prostheses. In this way the adjacent teeth will be preserved and the patient will use fixed prosthesis instead of removable prosthesis (Chen et al., 2011).

In order to achieve a natural appearance in anterior single tooth deficiencies, soft tissue contours should be natural and papillae should be present. Biological width concept states that formation of papilla is dependent upon many factors including implant's vertical or horizontal positioning, implant's prosthetic component design, design of the transmucosal component, biotype of the soft tissue, and type of the

material blended with mucosa (titanium, ceramics, zirconia etc.) (Hermann et al., 2000). Also, thickness of labial bone is very important to provide tissue contour and implant stability in the long term. The most important factors that make reaching aesthetic results more difficult are high laughing line and the fine gingival biotype (Kan et al., 2003).

Restoration of non-recoverable teeth in the anterior regions of the maxilla may be achieved by immediate implant placement and provisionalization in fresh sockets (McRory and Cagna, 2014). Both patients and clinicians want shorter overall treatment periods and minimum surgical and prosthetic intervention quantity in implant dentistry. After tooth extraction, a 2-3 month period of hard tissue remodeling around the socket and 3-6 months of healing with no load are advised in traditional guidelines because those were thought to be essential in the 1980s (Albrektsson et al., 1981). In the last 2 decades, immediate implant placement just after the extraction and early implant insertion after soft tissue healing for a few weeks have been used as alternative protocols (Chen et al., 2004).

Faster prosthetic replacement, decreased morbidity, treatment duration, and surgical procedure number may be achieved by placing single implant immediately (Hämmerle et al., 2004). A single missing tooth may be replaced by surgical implant placement and then application of a healing transmucosal abutment and closure of the soft tissue appropriately (Mish, 2008). Aiming to produce a final restoration and to design the emergence contours that will support the adjacent tissues the restoring dentist may start procedures after osteointegration and soft tissue maturation. Both the laboratory technician and the dental practitioner may have a difficulty with the traditional approach because after surgical implant placement if the peri-implant soft tissues heal using a prefabricated healing abutment instead of the more natural emergence profile which is necessary for facilitation of optimal restorative esthetics a cylindrical transmucosal passageway is created (Shor et al., 2008)

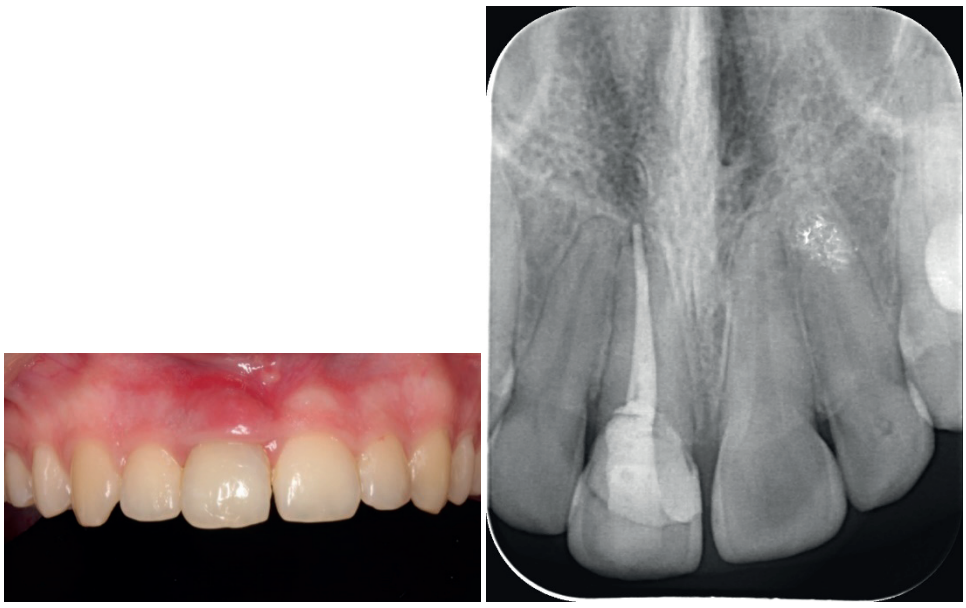
Estimation of dental technician will affect the ability to achieve an esthetically and biologically convenient soft tissue healing. If the emergence contour is excessively contoured complete restoration placement may be prevented by healthy peri-implant tissue and surgery may be required to recontour the soft tissue. If the contour of the coronal emergence is not adequate or optimal gingival structure is not correctly estimated esthetic success in the definitive restoration may be poor. Accordingly, at the time of implant surgery producing an optimally contoured provisional crown should be considered (Chen et al., 2004; DeRouck et al., 2009; Mathews, 2000; Su et al., 2010).

The aim of this article is to describe a clinical technique that uses the labial part of the extracted tooth and that will enable healing of peri-implant soft tissues against an optimally derived provisional crown. This method eliminates problems that occur with the more traditional method and facilitates maturation of predictable and desirable soft tissue.

2. Description of the Case

With a chief complaint of increased mobility in the maxillary right incisor, an 18-year-old female patient attended the clinic. The diagnostic examination was completed with paying particular attention to fractured tooth and the bone volume at the intended implant site. There was a horizontal tooth fracture on the coronal part of the root side (Figure 1a, 1b).

Figure 1. a) Preoperative view, b) Periapical X-ray of the mobile incisor



Patient was informed about the treatment procedure and signed a consent form. The unstable crown part of the tooth is stabilized in order to take a precise impression. After taking the impression with irreversible hydrocolloid impression material (Hydrocolor 5, Zhermack SpA, Badia Polesine, Italy), the stone model and a silicon index were prepared (Figure 2). The crown part of the tooth was gently extracted. Following the preparation of the buccal 1/3 of the crown, disinfection procedure was performed and the prepared crown was placed into the silicon index (Zetaplus, Zhermack SpA, Badia Polesine, Italy) (Figure 3a, 3b). The extraction of the fractured root was performed with care to protect the sensitive facial plate of the hard tissue and to evade injury to the interproximal gingival area. Debriding the extraction socket, alveolar bone was promoted to bleed. A notch was created on the palatal wall of the socket and the osteotomy of implant was done in contact with the palatal wall. According to the recommended osteotomy sequence of the implant system, a pilot opening was created by a sharp-pointed pilot drill (4.8mm in diameter, 14mm in length, Bone Level, Straumann Company, Basel, CH). After the enlargement of the osteotomy, the implant was placed to the terminal location with a hand-driven torque wrench with a 35 Ncm of force to restrict stripping of the sensitive bony area (Figure 4). The gap between the implant and the buccal wall was filled with allogeneic graft material (MinerOss Cortical & Cancellous Chips, USA).

Figure 2. The prepared stone model and silicon index.

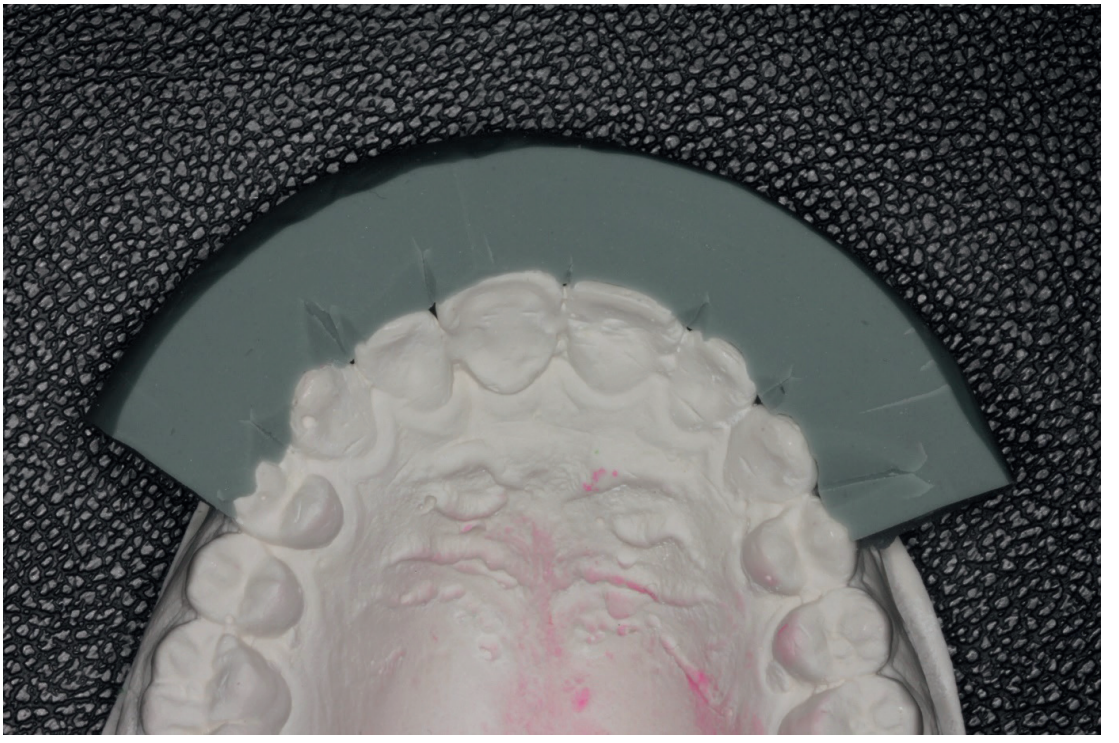


Figure 3. a) The prepared buccal 1/3 of the crown b) placed into the silicon index

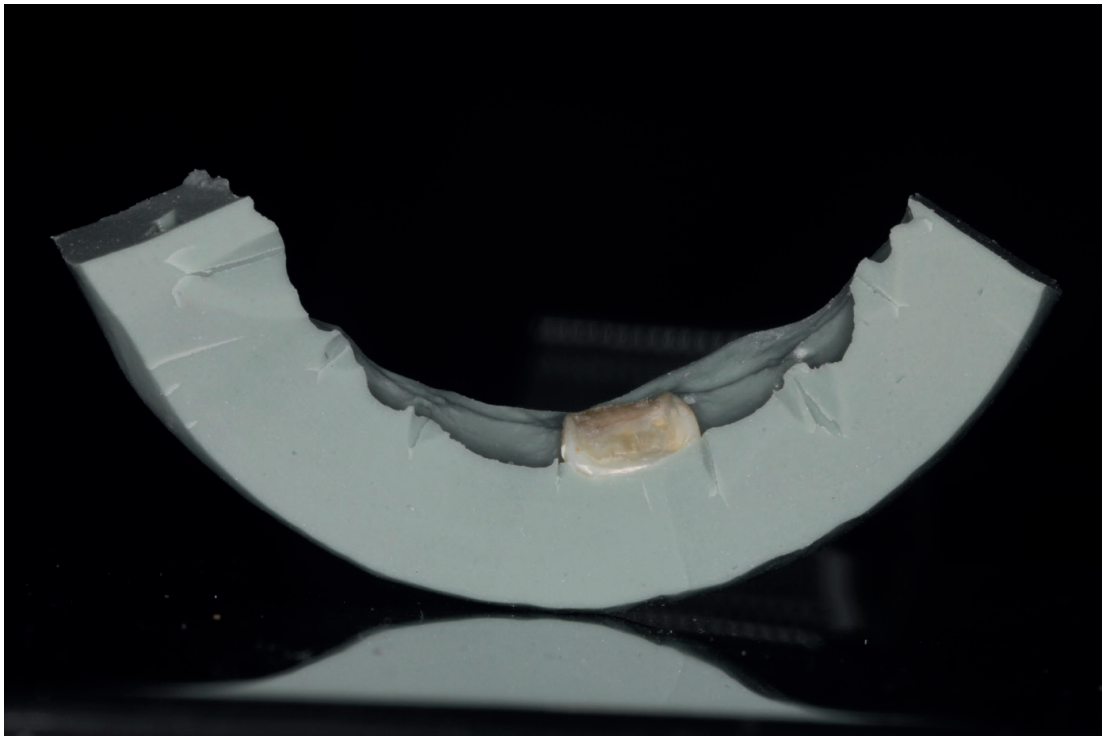
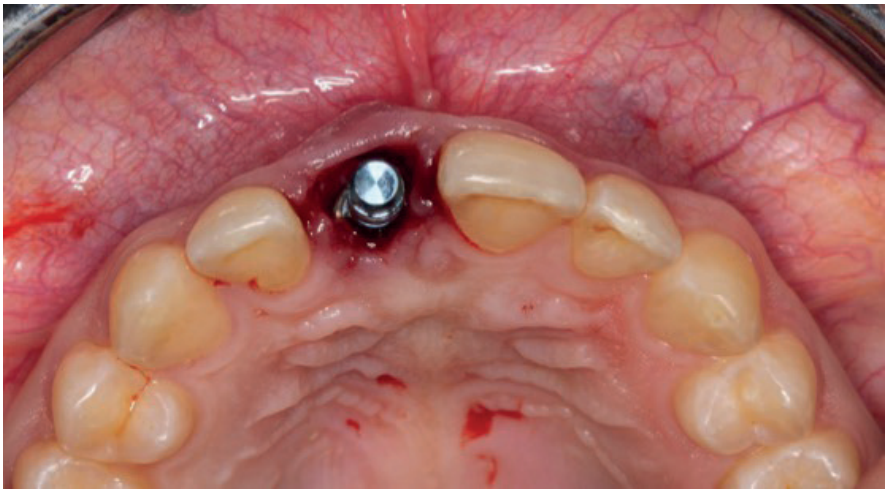


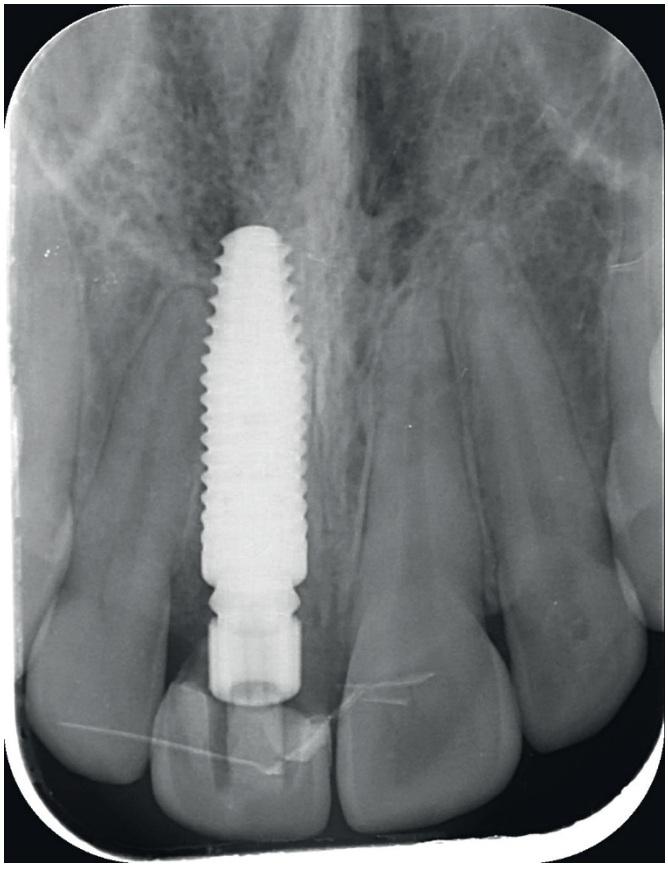
Figure 4. The placed implant immediately after extraction



The provisional crown was produced by connecting a provisional abutment (Temporary Peek Abutment-Straumann Company, CH) onto the implant. Using adjacent teeth as landmarks, the abutment was marked 1.5 to 2.0 mm below the assumed incisal edge with a sterile pen. The provisional abutment was removed and reshaped with a high-speed bur (GZ Instrumente, Austria) along with water irrigation. The extracted crown part got cleaned, disinfected and prepared to adapt to the provisional abutment. Following the adaptation of the buccal part of the crown in the silicon index, the screw access tunnel was filled with cotton pellets and afterwards the provisional restoration was achieved with light-curing flowable composite resin (EsFlow, Spident Co., LTD, Korea). The composite was cured for 10 seconds using light curing unit (Valo Cordless, Ultradent). After polymerization, polishing and disinfecting of the provisional crown within chlorhexidine gluconate 0.12% oral rinse was performed (Figure 5). Then, the cotton pellets were removed, after which the interm restoration was checked intraorally.

Figure 5. The prepared interim restoration

Figure 6. The periapical x-ray after seating of the restoration



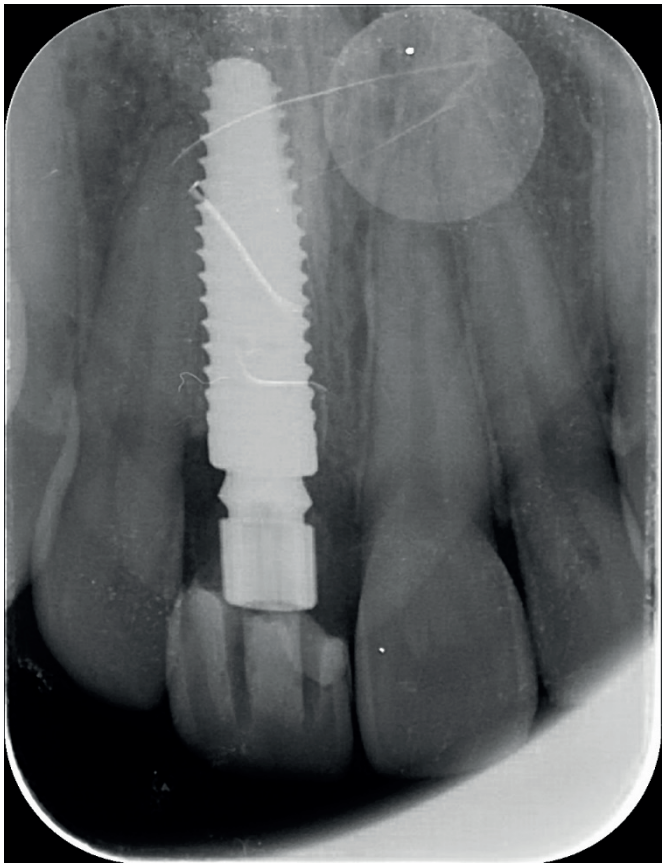
Following the final recontouring, the provisional crown was located and the retention screw was hand-tightened and a periapical x-ray was taken to guarantee the precise fit (Figure 6). The abutment screw was condensed over with a plumber's polytetrafluoroethylene tape (Baytaş, PTFE Teflon Tape, Konya, Turkey) which was presterilized and the screw access tunnel was filled with a composite resin (Charisma, Heraeus Kulzer, Germany) and was cured for 10 second using light curing unit. The interim restoration occlusion was carefully managed to promote implant stability through osseointegration period. Any maximum intercuspal and eccentric contacts were eliminated (Figure 7). The patient was instructed to evade the masticatory load forces of the provisional crown restoration throughout the integration interval.

Figure 7. The screw access channel was filled with a composite resin

The patient was recalled 1 week after surgery. Oral care and mastication instructions were reinforced and scheduled future recall appointments (Figure 8). Three months after the surgery, when the patient was recalled, it was seen that the perimplant soft and hard tissues were successfully restored and formed (Figure 9a, 9b).

Figure 8. Intraoral view, 1 week after surgery

Figure 9. Three months after the surgery, a) the soft tissue b) periapical x-ray of the hard tissue around the implant



3. Discussion

Several researches have centered on various sets of preoperative, intraoperative, and postoperative factors. The quality of root canal treatment, periapical situation, and restorability of the tooth may alter the survival of endodontically treated teeth.[14] Crown and root fractures are amongst the foremost reasons for tooth extraction after root canal treatment (Landys et al., 2015). This verdict may be defined by a catastrophic sequence that has been associated with reinfection of the root canal system throughout coronal microleakage or total loss of coronal tooth construction after a crown fracture (Vire, 1991).

In the esthetic area, the horizontal root fracture of endodontically restored tooth is often a traumatic occurrence for the patient (Singh et al., 2015). Immediate implantation may provide faster prosthetic rehabilitation, reducing treatment time, morbidity, and the number of surgical steps demanded. The decrease in overall treatment time with fewer surgical interventions, diminished soft and hard tissue destruction, and psychological compensation of the patient can be counted as advantages of this procedure (Mathews, 2000).

The presented procedure in this case report demonstrates a technique for manufacturing a single implant-supported provisional restoration in association with implant installation in a fresh extraction area with using the patients extracted crown. Providing a provisional crown in the method defined helps process and preserves the precarious soft tissues around the implant and helps evade several complications correlated with a single-tooth removable provisional denture. Using the crown section of the extracted tooth helped the patient to content. On the other side, fixed provisional crown helped to promote esthetically and biologically relevant soft tissue evolution for the final prosthesis.

Conflict of Interest

The authors declare that they have no conflict of interest.

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Instruction for Authors

Aims and Scope

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Introduction; 6. Materials and Methods; 7. Results 8. Discussion; 9. Conclusion; 10. Acknowledgement; 11. Conflict of Interests; 12. References. Manuscripts submitted as a "*Research article*" do not have a wording limit. However, manuscripts that are submitted as "*Research article*" should be more than 5000 words, excluding the tables, figures and references.

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3. *Reviews:* The manuscripts that are describing critical evaluation of the current situation in the literature and providing future prospects according to current knowledge on a topic in regard to all aspects of health sciences will be published as a "*Review*". The reviews should be consisting of the following parts: 1. Title; 2. Authors and affiliations; 3. Abstract; 4. Keywords; 5. Contents; 6. Introduction; 7. Sub-Topics Provided in Contents; 8. Conclusion; 9. Acknowledgement; 10. Conflict of Interests; 11. References. Manuscripts submitted as a "*Review*" should not exceed 10,000 words excluding the tables, figures and references.

4. *Case studies:* The manuscripts that are describing a critical evaluation of an observed clinical cases in dentistry, medicine and clinical pharmacy will be published as a *"case study"*. The case studies should be consisting of the following parts: 1. Title; 2. Authors and affiliations; 3. Abstract; 4. Keywords; 5. Introduction; 6. Description of the Case; 7. Discussion; 8. Acknowledgement; 9. Conflict of Interests; 10. References. Manuscripts submitted as a "*Case report*" should not exceed 5000 words excluding the tables, figures and references. A written consent of the patient may be required if the case report contains images taken from the patients. All the case reports must contain ethical committee approvals.

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The manuscripts should be written double spaced in Arial font type and 12 pts font size. Each page should be numbered, and consecutive line numbers should be provided. Title page, authors list and affiliations should be prepared as a separate file. Tables and Figures should also be prepared as a separate file.

Title Page: The title page should contain the full title of the work which should not exceed 200 characters. Abbreviations should be avoided in the title. Main title of the manuscript should be followed by the "*short title*" which should not be longer than 70 characters. Short title should be followed by the list of author names. Author names should be given as name and surname followed by superscript Arabic numbers indicating the affiliations. One author should be designated as the corresponding author and should be indicated in the authors list with the superscript asterix symbol after the affiliation indicator. Author list should be followed by the list of affiliations which indicate the department, institution, postal code, city, country and e-mail(s) of the author(s). Finally, corresponding author full mailing address, telephone, fax and e-mail should be provided. Acknowledgement and Conflict of Interests parts should be given in the title page.

Main text: Main text should be divided into sections and sub-sections using Arabic numerals, starting from the introduction part. Sections should be indicated with bold and non-italic characters. Sub-sections should be indicated with bold and italic characters (as given in example).

Section Example: 1. Introduction

Subsection Example: 2.1. *GC-MS Analysis*

First page of the main text should contain the title followed by a 300-word abstract. Abstract should not contain citations. Abbreviations could be used in the abstract however; full explanation of the abbreviations should be given at the first time that they have appeared in the abstract. Abstract should briefly summarize the study. Abstract should contain the following information: 1. Purpose/Aim of the study; 2. Materials and methodology used in the study; 3. Key results obtained in the study; 4. Conclusion remarks. Abstract part should be followed by 6 keywords that describe the work. Keywords should be separated from one another with a semicolon.

Depending on the type of article following parts should be given in the main text. Introduction part in the manuscript should contain a brief explanation of previous studies, aim of the current study and reasoning of the study. Materials and Method part should be given in full detail allowing replication of the performed experiments/clinical studies/technical studies by other scientists. In materials and methods section all the instruments, chemicals used in the study should be explained by their brand and model. Results, should be described without any comments. Discussion and conclusion parts should not contain any speculations. A clear and concise discussion and conclusion remarks should be given.

Acknowledgement

Authors should indicate any acknowledgement related to the study in this part.

Conflict of Interests

Authors should clearly indicate any kind of conflict of interests for the study in this part. If the authors do not have any conflict of interests, they should indicate "Authors declare no conflict of interests".

Tables & Figures

The authors should indicate the position of Tables and Figures in the text by indicating the Title of the table (as given in the example). All figures should be provided as a tiff file with at least 300 dpi resolution. The images given as figures should be authentic, no manipulations should be done. Color figures are welcome in the journal and does not require a publication fee.

Example: Figure 1. ^{1}H-NMR spectrum of *Ulubelenolide*.

The figures and tables should be given as a separate file. Each table and figure given should contain a title and if required footnotes should be given. Each figure and table given should be self-explanatory.

Reference Format

Citation of references in the text

Authors must check their manuscript that every reference cited in their text should also be in the given reference list and every reference listed should be in cited in the text. Citations of unpublished results and personal communications should be avoided. Citations of literatures that were accepted by a journal and which have doi number, issue and page numbers could be cited in the text however, authors should indicate that this work is "*in press*". The citations of the web pages should be avoided. The citations in the text should adhere to the following style.

Cited reference which have a single author: (author's last name, year of publication)

Example: (Biyikoglu, 2017)

Cited reference which have two authors: (last name of the first author and second author, year of publication)

Example: (Biyikoglu and Polatoglu, 2017)

Cited reference which have three authors or more: (last name of the first author et al., year of publication)

Example: (Polatoglu et al., 2017)

Cited references which have the same first author(s) that were published in the same year: (last name of the author, year of publication and uncapitalized letters for separation)

Example: (Biyikoglu, 2017a; Biyikoglu, 2017b)

Cited references as lists: The references that are going to be given as a list in a single parentheses should be first arranged alphabetically than chronologically.

Example: (Biyikoglu 2017a; Biyikoglu 2017b; Polatoglu et al., 2013)

Cited references given in text: If author names are going to be mentioned in the text for the citation than it should be given as: "….Polatoglu et al. (2013)……"

Examples: "……..Polatoglu et al. (2013) have indicated….

"……Biyikoglu (2017) demonstrated that……"

Reference formatting

The reference formatting should be given according to the following style (APA). DOI numbers should be given after the reference if available.

Reference style

Reference to a journal publication:

Polatoglu, K., Demirci, F., Demirci, B., Gören, N., Baser, K. H. C. (2010). Antibacterial activity and the variation of Tanacetum parthenium (L.) Schultz Bip. essential oils from Turkey. Journal of Oleo Science, 59(4), 177-184. https://doi.org/10.5650/jos.59.177

Reference to a book:

Preedy, V. R. (Ed.). (2015). Essential oils in food preservation, flavor and safety. 1st Ed., Academic Press, Elsevier, Oxford, UK.

Reference to a chapter in an edited book:

Polatoğlu, K., Karakoç, Ö. C. (2015). Biologically Active Essential Oils against Stored Product Pests. 1st Ed., In Preedy, V.R. (Eds.), Essential Oils in Food Preservation, Flavor and Safety. Academic Press., Elsevier, Oxford, UK, pp. 39-59.

Reference to a website:

National Cancer Institute, A success storyTaxol® (NSC 125973) https://dtp.cancer.gov/timeline/flash/success_stories/s2_taxol.htm (accessed14 December 2017)

Reference to a Thesis:

Knight, K.A. (2011). Media epidemics: Viral structures in literature and new media (Doctoral dissertation).

Abbreviations

Full explanation of the abbreviations should be given at the first time that they have appeared in the text. Title should not contain any abbreviations. After the explanation of the abbreviations are given in the text authors could use abbreviations throughout the text.

Example: "…..Acetylcholinesterase (AChE) and butrylcholinesterase (BChE) enzymes were ……."

Chemical and Biological Nomenclature

The names of the biological organisms should be given in full of the author name at the first time they appear in the text. The genus and species names should always be written in italics. Authors could use the short name of the organism after the full name was indicated. Local names of the organisms could be mentioned however, throughout the manuscript these organisms should be referred to with their binominal names.

Chemical compounds should be preferably named according to the IUPAC nomenclature.