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The Results of Posterior Cruciate Ligament Sparing Type Total Knee Arthroplasty in Elderly Patients

Mustafa Gozu ^{1*} - Ahmet Arik ² - Nazim Karalezli ³

¹ Orthopedics and Traumatology Department, Ankara Ulus State Hospital, Ankara, Turkey

² Orthopedics and Traumatology Department, Private Ankara Umut Hospital, Ankara, Turkey

³ Orthopedics and Traumatology Department, School of Medicine, Sitki Kocman University, Mugla, Turkey
nkaralezli@yahoo.com

ABSTRACT

Purpose: The main purpose of this study was to report the 12 to 36 months' results of posterior cruciate ligament sparing type total knee arthroplasty in elderly patients.

Methods: A retrospective evaluation was made of a total of 75 patients with advanced stage tibio - femoral arthrosis with the pain of a degree that would limit daily activities, and which had not responded to conservative treatment, and who then underwent total knee arthroplasty between April 2013 and May 2015.

Results: The mean age of the patients was 71.7 years, and the mean follow-up time was 21 months (range, 12- 36 month). Body Mass Index (BMI) was calculated as $>30 \text{ kg/m}^2$ in 15 (20%) patients, $25\text{-}30 \text{ kg/m}^2$ in 41 (54,6%), and $20\text{-}25 \text{ kg/m}^2$ in 19 (25,3%) patients. The mean operating time was 61.06 min (range, 50-90 min). Preoperatively, the knees of all the patients were evaluated as varus. The angles shown in the AP radiographs for placement of the components were determined as alpha angle mean 96.2° (range, $89^\circ\text{-}103^\circ$), beta angle mean 88.7° ($80^\circ\text{-}92^\circ$). Preoperative and postoperative mean knee and functional scores of the knees, according to the KSS was evaluated at 28.6° , 40.1° , 79.6° , and 78.1° respectively. The mean range of movement at the last follow-up was 96° (85-120).

Conclusion: In conclusion, the results of this study showed good results were obtained with total knee arthroplasty in the treatment of knee arthrosis occurring at an advanced age, although an increase in postoperative complications was determined with increased BMI, which is consistent with other studies in the literature.

To cite this article

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Keywords: Gonarthrosis, Total Knee Arthroplasty, Arthrosis

1. Introduction:

In the treatment of degenerative knee arthrosis, total knee arthroplasty (TKA) is a method which is successfully used both for the eradication of pain and for the correction of functional status when it is observed in both compartments of the knee in elderly, sedentary patients.

Factors affecting postoperative success and functions include patient age and weight, preoperative activity level, concomitant joint involvements and diseases and preoperative range of movement and alignment together with the surgeon's experience (Morra et al., 2008). The risk of systemic complications increases with age. Infection, local

wound site problems, and patellofemoral problems have been reported to be observed more often in obese patients with a high body mass index (Scott et al., 2012; Flegal et al., 2012; Bray, 1987; Winiarsky et al., 1998).

Another factor increasing complication rates is diabetes, and thus, in the same way, wound site problems, infection and deep vein thrombosis have been reported at higher rates in diabetic patients compared to the normal population (Amin et al., 2006; Stern & Insall, 1990; Andriacchi & Hurwitz, 1997).

Although the postoperative range of movement (ROM) has been reported in the literature as mean

100°-115°, one of the most important factors determining postoperative ROM is the preoperative ROM (Morra et al., 2008).

Despite all the precautions taken preoperatively during the operation and developments in prosthesis design, some patients satisfaction with the outcome isn't good as expected (Lewis et al., 2014; Turpie et al., 2009; Eriksson et al., 2008). The aim of this study was to compare the results of the knee arthroplasty applied with posterior cruciate ligament sparing type prosthesis, which is considered to provide a good level of satisfaction, with the previous literature.

2. Material and Method:

A retrospective evaluation was made of a total of 75 patients with advanced stage tibio-femoral arthrosis with the pain of a degree that would limit daily activities and which had not responded to conservative treatment and then who underwent total knee arthroplasty between April 2013 and May 2015.

The patients were 40 females and 35 males with a mean age of 71.7 years (range, 58 - 84 years). The right knee was affected in 25 patients, the left in 30 and same-session bilateral TKA was applied to 20 patients.

All the patients were operated on by two surgeons (MG or AA) using a cemented posterior cruciate ligament sparing prosthesis (F/S Protec). Under general anaesthesia in 24 patients and spinal anaesthesia in 51 patients, a medial parapatellar approach was used with a longitudinal midline skin incision. The femur bone cut was made using an intramedullary guide at 3° external rotations and 7° valgus according to the posterior condylar axis.

The tibia bone cut was made using an extramedullary guide. Checking was made with trial prostheses then the component was fixed with cement (Surgical Simplex P; Stryker). A hemovac drain was placed in all patients and removed after 48 hours. As deep vein thrombosis prophylaxis, low molecular weight heparin was administered at 6 hours postoperatively and continued for 20 days.

The tourniquet duration, preoperative and postoperative haemoglobin values, amount of bleeding, and the number of blood transfusion units if used, were recorded. Clinical evaluations were made using the Knee Society Score (KSS).

KSS is an outcome scoring system comprising two subgroups of knee and function scores. Knee score rates the joint itself and the function score rates the ability of the patient to walk and climb stairs.

Both components are scored out of a maximum of 100 points. The specific parameters assessed by the knee score component are a pain (50 points), the range of movement (25 points) and stability (25 points),

with deductions for flexion contracture, extensor lag, and malalignment. The function score component addresses the walking distance (50 points) and the ability to climb stairs (50 points), with deductions for any walking aids used (Tan et al., 2014).

Radiological evaluation was made according to the Knee Arthroplasty Radiological Evaluation form using preoperative and postoperative standing anteroposterior and lateral knee radiographs (table 1).

Table 1: *Radiological results postoperatively*

AP radiographs	
Mean femoral angle (range)(α)	96.2(89-103)
Mean tibial angle (range)(β)	88.6 (83-94)
Mean total valgus angle	7.4 (0-12)

Complications including infection, deep-vein thrombosis, and peri-operative mortality were also noted. A wound infection is considered deep if it is not resolved with oral antibiotics and requires debridement or revision. Perioperative mortality was defined as a death during the peri-operation period or within three months of the operation.

Statistical analysis was done using Microsoft Excel 2010. The Student's t-test was used to evaluate the difference between the preoperative and postoperative periods. A value of $p < 0.05$ was accepted as statistically significant.

3. Results:

3.1. Clinical Results

The mean follow-up period of the patients was 21 months (range, 12- 36).

Body Mass Index was calculated as >30 in 15 (20%) patients, 25-30 in 41 (54,6%) and 20-25 in 19(25,3%) patients. The mean operating time was 61.06 mins (range, 50-90 mins). The amount of blood collected in the hemovac drain during the operation and postoperatively was mean 502.66 cc (range, 400-750 cc). Blood transfusion applied postoperatively was mean 1.29 units (range, 1-2 units).

3.2. Radiological Results

Preoperatively, the knees of all the patients were evaluated as varus. A change from preoperative varus deformity of mean 17.1° to postoperative 7.4° valgus was determined ($p < 0.05$). The angles shown in the AP radiographs for placement of the components were determined as alpha angle mean 96.2° (range, 89°-103°), beta angle mean 88.7° (80°-92°).

Preoperative and postoperative mean knee and functional scores of the knees according to the KSS was evaluated at 28.6, 40.1, 79.6 and 78.1 respectively (table 2) ($p < 0.05$). The mean range of movement at the last follow-up was 96° (85-120)

Table 2: *Clinical results*

Knee score	society	Pre-op'	Post op' at the last follow-up	p-value
Mean	knee	28.6 (9-49)	79.5 (55-100)	<0.05
Mean function score (range)				
Mean function score (range)		40.7 (15-65)	78.1 (50-90)	<0.05

3.3. Complications

In a 77-year old female patient, a femoral supracondylar fracture developed, which was treated with plate osteosynthesis. In 4 patients, superficial infection developed in the postoperative first week. *Staphylococcus aureus* was determined in their cultures and treatment was applied with 1st generation cephalosporin for 3 weeks. All of these patients had a BMI greater than 30.

4. Discussion

Total Knee Arthroplasty restores functional knee movements by relieving pain and removing the limited movement caused by degenerative arthrosis. When stable and sufficient range of movement is obtained in the knee, patient satisfaction is high (Turpie et al., 2009).

As a result of a high range of movement obtained, the patient is able to ascend and descend stairs more comfortably. Scott et al reported that the ability to perform this activity increased postoperative patient satisfaction by a significant degree (Eriksson et al., 2008). In the current study, at the final postoperative follow-up examination the mean range of movement was 96° and patient satisfaction was high.

It has been reported that obesity prevalence reaches a peak in the 6th and 7th decades of life. These age groups are also the groups to which arthroplasty is most often applied (Insall et al., 1989). According to the World Health Organization (WHO) criteria, patients with BMI <25 kg/m² are accepted as normal weight. Those with a BMI of 25.0-29.9 kg/m² are defined as overweight and BMI of >30 kg/m² as obese (Scott et al., 2012). As subcutaneous tissue is thicker in obese patients, there are difficulties reaching the bone tissue to be cut during the operation (Flegal et al., 2012).

During the postoperative period, there may be an earlier component failure and revision due to the extra weight of the components. In addition, the frequency of wound site problems and infection increases (Bray, 1987). In a study of 257 TKA in obese patients, it was reported that patellofemoral problems occurred in 182 patients after mean postoperative 4 years (Winiarsky et al., 1998). In the current study, 4 patients (16%) were in the obese group. Postoperative supracondylar femur fracture

and superficial and deep infections developed in this group of obese patients. When cases of revision due to aseptic loosening are examined in the literature, the most common reasons are seen because of obesity and varus malalignment. When there is varus malalignment, loosening is caused by excessive loading on the medial of the tibial component (Lewis et al., 2014). In the current case series, postoperative valgus alignment of 7.4° was obtained. No aseptic loosening was determined in any patient.

Deep vein thrombosis (DVT) occurs in 0.9% of patients following total knee arthroplasty. Pulmonary embolism requiring hospitalization has been reported to occur in 0.3% of patients (Amin et al., 2006).

Various methods of prophylaxis are used to avoid these serious complications. Pharmacological prophylaxis is the primary of these methods. Warfarin is known to be an important anticoagulant agent, but careful monitorization is needed during use. Low molecular weight heparin is another option, which does not require close monitorization but must be used by the parenteral route in the same way as Warfarin. However, compared to other groups, a non-significant increase in bleeding has been reported (Stern & Insall, 1990; Andriacchi & Hurwitz, 1997).

In the current series, mean 540cc postoperative bleeding was determined. No DVT was determined in any patient.

In a study by Tan et al, the results of TKA performed by surgeons only dealing with knee surgery were reported to be better than those of general orthopaedic surgeons and surgical indications were placed at lower scores. According to this, the preoperative KSS knee and function scores were 38.2, and 48.4 respectively in patients operated on by surgeons specializing in knee surgery, whereas the scores of the patients operated on by general orthopaedic surgeons were 41.2, and 50.1 respectively (p<0.001) (Morra et al., 2008).

In the current study, the KSS knee and function scores were determined as 28.6 and 40.1 preoperatively and at the last follow-up postoperatively the knee scores were 79.6 and the function scores were 78.1.

In a study of TKA applied to 204 patients, Papakostidou et al., reported that significant improvements were obtained in the VAS and KSS scores compared to the preoperative values. A mean 8.7 indicates improvement on the preoperative VAS score was reported at postoperative 12 months. The KSS knee score improved from preoperative 40.9 to 89.3 at 12 months postoperatively and the function score from 34.4 to 68.6 (Papakostidou et al., 2012).

There were some limitations to this study, although greater number of patients and a longer follow-up the period would have strengthened the

study, but the mean follow-up period of 21 months was deemed a sufficient period. The number of patients was low as the evaluation was made only of varus knees with a single type of prosthesis applied by 2 surgeons. In addition, it was attempted to strengthen the study by reducing to a minimum the differences between surgeons seen in multicentre studies. That the study did not compare different makes and models of knee prosthesis could be said to be a limitation of the study. However, in the belief that better results were obtained from makes and models with which the surgeons were familiar, no change was made to the most frequently used make of the prosthesis and the study was planned to present the results of a model with good results.

In conclusion, the results of this study showed that extremely good results were obtained with total knee arthroplasty in the treatment of knee arthrosis occurring at an advanced age, although an increase in postoperative complications was determined with increased BMI, which is consistent with other studies in the literature.

5. Disclosure

No conflict of interest was declared by the authors.

Corresponding Author:

Nazim Karalezli, MD

Orthopedics and Traumatology Department, School of Medicine, Sitki Kocman University, Mugla, Turkey.

E-mail: nkaralezli@yahoo.com

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Depression in Pregnancy: A Psychiatric Dilemma

Hassaan Tohid ^{1,2*} - Aisha Ashraf ²

¹ The Center for Mind & Brain, The University of California, Davis, California, United States of America

² California Institute of Behavioral and Neurosciences, California, United States of America

hassaantohid@hotmail.com

ABSTRACT

Objective: To highlight the clinical problem of antenatal depression.

Method: A brief literature search was done to write a short review. The search was conducted in the databases like PubMed for the articles discussing the association of pregnancy with major depression. The search for this short review was conducted from January 2015 to February 2015, in California, USA with an intention to highlight the already established association of major depression with pregnancy.

Result: Pregnancy is associated with various psychiatric problems. Major depression is the most common of all the psychiatric problems seen in pregnancy.

Conclusion: Because many symptoms during pregnancy are easily confused with major depression. It is very easy to misdiagnose. The wrong diagnosis or a missed diagnosis of depression are equally harmful to the maternal and fetal health. Therefore, it is recommended that appropriate measures like assessment and screening tools plus education should be taken by the hospitals in order to help gynecologists to be able to differentiate major depression from the normal symptoms of pregnancy.

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Keywords: Depression; Pregnancy; Antenatal Depression; Major Depression; Post-natal Depression

1. Introduction:

"Doctor, I can't sleep, I feel sad! I'm worried about how will I be able to take care of my child with my anger outburst. My lack of energy and mood swings always make me upset with my upcoming life events" This kind of statement is one of the most overheard statements, by a pregnant patient, presenting to primary care physician if she has HMO or an obstetrician or gynecologist if she has PPO insurance. Pregnancy has some well-known common physical symptoms. However, it also manifests with some psychological adaptations like mood swings, irritation, anger and sleep difficulties (D'Anna-Hernandez et al., 2016; Haakstad et al., 2016). Some women also complain of fatigue (Haakstad et al., 2016). Thus it becomes very confusing for the attending obstetrician-gynecologist and primary care physician to detect if the symptoms are related to pregnancy or they are the manifestations of clinical depression. Often, normal pregnancy symptoms are

confused with depression and the patient is initiated on medications for clinical depression. Therefore, it is imperative for the clinicians in the 21st century to have some basic insight of psychiatric symptoms especially for major depression in order to correctly diagnose the illness and differentiate between the symptoms of major depression from the psychological manifestations of normal pregnancy. This is essential because an inaccurate diagnosis can be disastrous not only for the mother but also for the unborn child.

According to DSM-V, which published by American Psychiatric Association, (2013). Major depression is defined as "Five (or more) of the following symptoms have been present during the same 2- week period and represent a change from previous functioning; at least one of the symptoms is either (1) depressed mood or (2) loss of interest or pleasure.

Depressed mood most of the day, nearly every day, as indicated by either subjective report (e.g., feels sad or empty) or observation made by others (e.g., appears tearful). In children and adolescents, can be irritable mood, depressed mood can be markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day (as indicated by either subjective account or observation made by others), significant weight loss when not dieting or weight gain (e.g., a change of more than 5 percent of body weight in a month), or decrease or increase in appetite nearly every day. Note: In children, consider failure to make expected weight gains, Insomnia or hypersomnia nearly every day, psychomotor agitation or retardation nearly every day (observable by others, not merely subjective feelings of restlessness or being slowed down), Fatigue or loss of energy nearly every day, Feelings of worthlessness or excessive or inappropriate guilt (which may be delusional) nearly every day (not merely self-reproach or guilt about being sick), Diminished ability to think or concentrate, or indecisiveness, nearly every day (either by subjective account or as observed by others), Recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide.

The symptoms cause clinically significant distress or impairment in social, occupational or other important areas of functioning, the symptoms are not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition (e.g., hypothyroidism) (DSM-V).

It is a well-known fact that pregnant women are prone to major depression (Baskin et al., 2015), which is due to psychological or pregnancy hormonal changes induced phenomenon. The antenatal depression has also become as an economic burden for the patients and the hospitals in the recent times (Bauer et al., 2016). As already discussed, due to the lack of awareness, the diagnosis of depression could be missed in a pregnant patient or the normal psychological symptoms of pregnancy (when the patient did not actually have depression) could be misdiagnosed as depression and treated, which could be deleterious for the woman and her fetus (Zhong et al., 2015). Therefore, authors attempt to write this short review about the basic knowledge of depression for the non-psychiatric clinicians which will help them diagnose the symptoms correctly and will be useful in educating them on the harmful consequences of the misdiagnosis.

2. Materials and Methods:

The search for this short review was conducted from January 2015 to February 2015, in California,

the USA with an intention to highlight the already established association of major depression with pregnancy.

A short review of published literature was conducted in PubMed, Embase, MEDLINE, Science Citation Index, American Journal of Psychiatry, Journal of Psychiatric research, Psych Info. No date restrictions were used. Article relevant to major depression in pregnancy were included. Keywords included antenatal depression, psychiatric disorders in pregnancy, major depression, postpartum depression, and depression and fetus.

Selected articles were reviewed to identify additional articles that may have been missed by the keyword search. In total, over 300 articles were initially reviewed which fulfilled the eligibility criteria for antenatal depression particularly major Depression and pregnancy. In the end, 21 articles were selected for the review which we felt, mentioned a proper association of depression with pregnancy. In total, numerous articles are written in various journals. Thus, for this kind of short review these 21 selected articles were sufficient to provide enough information about a possible association of depression with pregnancy.

3. Results and Discussion:

3.1. Ante-natal depression a common clinical problem

By far the most common psychiatric comorbidity in pregnant women is major depression. According to an estimate, around 13.5% pregnant women are clinically depressed in their second trimester and 10.1% in their third trimester (e Couto et al., 2016; Evans et al., 2001).

The overall percentage of pregnant women with psychiatric comorbidities range from 13.6% at 32 weeks to 17% at 35 to 36 weeks' gestation (Evans et al., 2001; Josefsson et al., 2001; Ashley et al., 2016). However, the rates are different in the United States. The prevalence of major depression is found to be 6.1 % during pregnancy while 7 % in non-pregnant American women (Ashley et al., 2016). The symptoms of depression during the first and the last trimester are usually more as compared to the second trimester (Kumar & Robson, 1984). Unintended and teenage pregnancy is an issue to fight with in the 21st century. These kinds of unintended pregnancies are deleterious for the maternal mental health. Around 21% of women with an unintended pregnancy are clinically diagnosed with depression across the world (Abajobir et al., 2016; O'Hara, 1986).

Many other psychiatric comorbidities have been found associated with pregnancy which includes generalized anxiety disorder, panic attacks, bipolar disorder, eating disorder and obsessive compulsive disorder. However, depression is the most common of

them amongst all and has been associated with life-threatening consequences e.g. suicide. Proper measures have been taken recently to tackle the problem, yet the antenatal depression rate has not declined drastically in the US and across the world.

Why pregnant women are often diagnosed with depression is a topic of debate and study. Much work has been produced about the subject. A previous history of depression, discontinuation of medication(s) by a woman who has a history of depression, a previous history of postpartum depression, and a family history of depression, negative attitude towards pregnancy, lack of social support, maternal stress associated with negative life events, and a partner or family member who is unhappy about the pregnancy (Kumar & Robson, 1984; Abajobir et al., 2016; O'Hara, 1986) are the risk factors prevalent in the western world. However, in the developing countries like India, the risk factors tend to differ slightly from the risk factors in the Western world. In a study conducted in India by George et al. (2016), the percentage of depressed pregnant women was 16.3% among the 202 women sampled. The common risk factors for the ante-natal depression are pressure to have a male child, financial difficulties, non-arranged marriage, history of miscarriage and marital conflict.

Screening tool administration to identify women at risk of ante-natal depression is encouraged and also discussed in the past by many authors and researchers (Biaggi et al., 2016). Such tools could be beneficial for the well-being of mothers and the neonates. Moreover, proper education (Biaggi et al., 2016) about the possible risk factors among women from different cultural backgrounds is essential for the clinician.

Proper diagnosis and treatment of ante-natal depression is an important step in saving the lives of mothers and babies. A missed diagnosis of depression leads to failure to treat depression. This can result in several worse consequences like lack of compliance with prenatal care recommendations, poor nutrition, improper care, self-medication, alcohol and drug use, suicidal thoughts and thoughts of harming or killing the fetus, and it could be a risk factor of postpartum depression baby. An untreated maternal depression can also have a direct effect on the mental health of the fetus as well. It is studied that the babies born to depressed mothers have less frequent positive facial expressions and that these infants are also harder to console (Zuckerman et al, 1990). Moreover, it could translate into early childhood mental problems in the child.

The mood alterations during pregnancy could be a normal routine sadness of pregnancy, due to high levels of progesterone, which could be mistaken for

depression. The wrong diagnosis can put the patients on anti-depressants, which could also affect the fetus's physical health in some instances. Therefore, correct diagnosis is imperative in saving the mother as well as the fetus from the detrimental side effects of the medication and the negative stigma associated with depression, especially in the developing countries (Pedersen et al., 2016).

The treatment of ante-natal depression is managed the same way as the traditional depression. Consideration about the safety of two lives (mother and fetus), is essential before starting the treatment. Well-known effective psychotherapeutic treatment for depression includes cognitive behavioral therapy (CBT) and interpersonal psychotherapy (American Psychiatric Association, 1993). Moreover, education is also considered very important to the condition, treatment, and the outcomes. Drug treatment is also commonly adopted by many clinicians for their patients (Zoega et al., 2015). However, proper and vigilant follow-up by the clinician is important to protect the patient and the fetus from any rare possible side effects of the drug therapy.

Various preventive methods to prevent antenatal depression have been studied lately. All these measures have been useful in preventing or decreasing the prevalence of depression. Perales et al. (2016), conducted a study where the pregnant women were encouraged to exercise. Exercising regularly decreased the chances of depression among these women. A study conducted in Australia shows that psychosocial assessment tools and correct depression screening during pregnancy can be helpful in reducing the depression among pregnant women (Kohlhoff et al., 2015). However, in the future, more research will uncover some more beneficial ways of prevention of antenatal depression.

4. Conclusion:

Missing the diagnosis of depression during pregnancy or inaccurately diagnosing depression when actually it is not depression, both conditions could be extremely harmful to the mother as well as for the fetus. A missed diagnosis of depression can lead to the problems like maternal suicide attempts which could be lethal if the suicide attempt is successful. Similarly, misjudging pregnancy symptoms and confusing them with depression symptoms also put the mother and the fetus at risk, due to the complications and the side effects associated with the anti-depressant medications.

Therefore, proper psychiatric education of the gynecologists and other relevant clinicians must be done so that they are able to diagnose major depression properly and would be able to clearly distinguish psychological symptoms of pregnancy

from clinical depression. Moreover, appropriate measures must be taken by the hospitals regarding the correct education, exercise programs and the implementation of the psychosocial assessment tools and depression screening of all the pregnant women during the time of their stay in the hospital. More research is needed in order to find the best way to help the non-psychiatric clinician like obstetricians, gynecologists, and the Primary Care Physician to be able to differentiate between the two conditions.

Corresponding Author:

Hassaan Tohid, MBBS

The Center for Mind & Brain, The university of California, and California Institute of Behavioral and Neurosciences, California, United States of America.

E-mail: hassaantohid@hotmail.com

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Large Posterior Ascending Aortic Pseudoaneurysm 10 Years After Cardiac Surgery

Marzia Cottini ^{1*} - Francesco Terrieri ² - G. Piffaretti ³ - C. Beghi ²

¹Department of Heart and Vessels, Cardiac Surgery Unit and Heart Transplantation Center, "S. Camillo-Forlanini" Hospital, 00149 Rome, Italy

²Department of surgical and morphological Sciences, Cardiac surgery Unit, Varese University Hospital, University of Insubria, 21100 Varese, Italy

³Department of surgical and morphological Sciences, Vascular Surgery Unit, Varese University Hospital, University of Insubria, 21100 Varese, Italy
marzia.cottini@hotmail.it

Abstract: Ascending Aortic Pseudoaneurysm (AscAP) is a late and rare complication after cardiac surgery. This may occur 0.02-0.2% of after cardiac surgery procedures and the hospital mortality rate could be 6.9-15.4%. Multidetector computed tomography can provide accurate diagnoses as to the exact location and size of AscAP for surgical planning and follow-up. According to the scientific literature, the gold standard treatment is surgery but many case reports describe conservative therapy. Authors presented a case of giant posterior aortic pseudoaneurysm originating from the left side of the previous aortotomy.

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Keywords: Ascending Aorta, Pseudoaneurysm, Complication Cardiac Surgery.

1. Introduction:

Ascending Aortic Pseudoaneurysm (AscAP) also known as a false aneurysm, is an outpouching of a blood vessel caused by a defect in the two innermost layers (tunica intima and media) with continuity of the outermost layer (tunica adventitia) (Sullivan et al., 1988). AscAP is a rare complication of cardiac surgery and may occur as an early or late complication of surgery and the most frequent site of occurring are anastomoses, aortotomy, or a cannulation (Atik et al., 2006). Surgical or endovascular repair are recommended but may be associated with significant morbidity and mortality (Piffaretti et al., 2015; Di Eusanio et al., 2011).

2. Human Rights Statements and Informed Consent:

All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1964 and later revisions. Informed consent was obtained from the patient for being included in the image report.

3. Case Presentation:

Authors reported a case of 80-year-old male with a medical history of hypertension, dyslipidemia, and diabetes. Aortic Valve replacement was performed about 10 years earlier. He recently presented to our department because of the mild chest pain during the effort. A chest radiograph was normal. A subsequent transthoracic echocardiogram (TTE) was performed and documented a suspicious retro-aortic mass. The patient was then sent for further study with Multidetector computed tomography (MDCT). the MDCT detected a 75 x 65 mm saccular AscAP, which was believed to originate from the aortotomy (Figure 1 a, 1 a). The AscAP developed caudally the right coronary artery to the posterior side of ascending aorta, where involved unusually and extensively the left a trio-ventricular sulcus (Figure 2 a, 2 b). The increasing volume of the AscAP displaced down the pulmonary bifurcation and the left branch of the pulmonary artery, compressed partially left superior pulmonary vein and left atrium (Figure 3 a, 3 b).

According to the scientific literature, in asymptomatic patients without new leakage or LV remodeling were conservative, even if the treatment of choice for AscAP is surgery. Considering the

previous cardiac surgery, the clinical a syntomacity and its associated morbidity and mortality, Authors cannot be considered the surgery negligible.



Figure (1a). Computed tomography, a short-axis view of the ascending aortic pseudoaneurysm. Asc Ao: ascending aorta, AoR: Aortic Root, Des Ao: descending aorta, RCA: Right Coronary artery, RPA: right pulmonary artery.



Figure (1b). Computed tomography, long-axis view of the large ascending aortic pseudoaneurysm locating on the posterior side of the aorta. Asc Ao: ascending aorta, LV: left ventricle, RV: right ventricle, RPA: right pulmonary artery, AVS a tri-ventricular sulcus.



Figure (2a). Computed tomography, sagittal view of the partial thrombosis of the ascending aortic pseudoaneurysm (arrow).

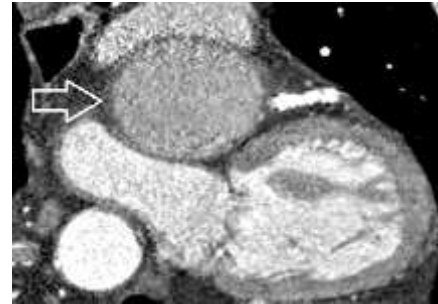


Figure (2b). Computed tomography, sagittal view of the maximum diameter of the ascending aortic pseudoaneurysm (7.5 cm).



Figure (3a). Computed tomography, a short-axis view of partial compression of the left superior pulmonary vein by the ascending aortic pseudoaneurysm (arrow).



Figure (3b). Computed tomography, long-axis view of partial compression of the left superior pulmonary vein by the ascending aortic pseudoaneurysm (arrow).

4. Discussion:

The AscAP were reliable and life-threatening complication after cardiac surgery: the best diagnostic workup with imaging procedure and the early treatment (surgical or endovascular) reduced significantly morbidity and mortality, as reported by Piffaretti et al. (2015), "regardless of etiology, AscAPs should be treated even if they are

asymptomatic because of the high chance of rupture, bleeding fistula formation, and compression or erosion of the surrounding structures, which may be highly fatal".

According to Zipfel et al. (2011), "single piece, reversed, tapered stent grafts adapt better to the special anatomy of the hypo plastic aortic arch, midterm results are excellent; complete shrinkage in 50% is remarkable, but the long-term behavior of these implants in young patients requires further evaluation and surveillance". Therefore, Malvind et al (2013), considered the AscAP percutaneous treatment choices as percutaneous stent-graft placement, device occluder implantation, and coil embolization. "Endovascular techniques have some limitations, depending on the location of a false aneurysm and the size of the communication in the tear, stent-grafts require adequate landing zones and might not be a safe option in proximity to the coronary ostia and supra-aortic vessels". On the contrary, Piffaretti et al. (2015), reported a case report of saccular AscAP originating from cannulation site nearest coronary ostia which was excluded by new custom-design endograft.

Over the spreading and innovative endovascular therapy, the conventional surgery approached by thoracotomy or median sternotomy remained the gold standard of AscAP exclusion. More and more case reports of conservative therapy have been emerging in the scientific literature with a mean follow-up of 2 years. In particularly, this alternative observational treatment was chosen in a critical and complex patient by repeated A 6-months clinical and imaging evaluation follow-up.

5. Conclusion:

Comparing to the past, the treatment choice of AscAP after cardiac surgery are several: surgery, an endovascular procedure, and conservative therapy. The incidence of AscAP after cardiac surgery are less and less because of the accuracy of surgical technique and the new minimally reliable procedures. According to our experience and the scientific literature, the evaluation of all patient details (history, clinical exam) and the imaging data (high-quality MDCT and MRI, or transthoracic or transesophageal echocardiogram) should address to the better treatment choice with lowest mortality and morbidity for the patients.

6. Conflict of interest: None.

7. Relationship with Industry and Financial Disclosure: None.

Corresponding Author:

Marzia Cottini, MD.

Department of Heart and Vessels, Cardiac Surgery Unit and Heart Transplantation Center, "S. Camillo-Forlanini" Hospital, 00149 Rome, Italy

E-mail: marzia.cottini@hotmail.it

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Address: Anwar St. PO Box 11415, Amman, Jordan.

Telephone: +962-6-5050852.

Emails: editorsmenaj@gmail.com / jmenas2015@gmail.com

Website: <http://www.jomenas.org>

