

NEWSLETTER OCT – DEC. 2015

# KULSUM

Making Lives Safe



- ♥ Cardiac Rehabilitation at KIH
- ♥ Four years of suffering: Correct diagnosis made through MSCT Coronary angiography (KIH Case Study)

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## Cardiac Rehabilitation

Cardiac Rehabilitation is a professionally supervised programme to help people recover from heart attacks, heart surgery and Percutaneous Coronary Intervention (PCI) procedures such as Angioplasty. Cardiac Rehabilitation Programmes usually provide education and counseling services to help heart patients increase physical fitness, reduce cardiac symptoms, improve health and reduce the risk of future heart problems, including heart attack.

Cardiac Rehabilitation Phase 1 starts while you are in the hospital and emphasizes on exercise and education.

## Fundamentals of Cardiac Rehabilitation

At KIH, our OPD & IPD physiotherapists work in collaboration with medical officers and ICU nursing staff under the supervision of cardiac

Rate of recovery depends on age, gender, and other health conditions. Depending upon condition and responsiveness of patient to the rehabilitation, patient may stay in a particular phase or move back and forth among the various phases. There is no set time duration for the patient to stay in a specific phase.

## Exercise Programme

Exercise programme depends on medical history, clinical status, and symptoms. Phase 1 of Cardiac Rehabilitation Exercise Programme should progress from initial supportive and self-care activities to regular daily walk. Early activity is important, because muscles lose strength very quickly when remain immobile. As condition improves, patient is encouraged to exercise 2 or 3 times a day for 5 to 15 minutes each time.

A member of the Rehabilitation staff monitors the heart rate to ensure that it doesn't get too high while walking or climbing stairs. Patient's

# Cardiac Rehabilitation at

surgeons. The Rehabilitation Programme starts right from the second day of cardiac surgery.

Initially, the Rehabilitation includes simple joint motion exercises that can be done in lying or sitting position such as lifting the upper and lower limbs. Heart rate is continuously monitored and continues being monitored as the patient begins to walk. Phase 1 includes:

- A customized exercise programme, based on medical history, clinical condition, and symptoms.
- Discharge instructions about recovery activities.
- Education on lifestyle changes and measures to lower the risk of future heart problems.
- Ways to help body recover along with
  - Increase in appetite and strength
  - Increase in aerobic capacity
  - Increase in lung capacity

stay in the hospital depends on what problem, procedure, or surgery they have had. Cardiac Rehabilitation Phase 1 Programme takes 5 to 7 days in the hospital, including transition to home-based activities. In case of open-heart surgery, patient will likely to be in the hospital till post-operative recovery takes time. There are several ways to measure how body responds to exercise and other lifestyle changes.

## Measures to be Considered During Exercise Sessions At Home

**Target heart rate:** Target heart rate can guide on how hard a patient needs to exercise so that most aerobic benefit is attained from the workout.

**Rating of perceived exertion:** Rating of Perceived Exertion (RPE) is a valuable and reliable indicator in monitoring exercise tolerance.





**Blood pressure:** Blood Pressure (BP) will also be monitored in addition to heart rate and RPE.

**Angina:** Angina symptoms are caused by heart muscle not getting enough blood flow (Myocardial Ischemia). Angina may feel like chest pain or discomfort.

**Shortness of breath:** If a patient faces difficulty breathing during exercise, heart may be having trouble keeping up with the intensity of exercise. This difficulty breathing or shortness of breath is called Dyspnea.

**Recording measurements:** Exercise diary is an excellent way to keep track of current aerobic level as well as improvement in identification. Time, distance, and mode of activity should be recorded in each note. Including any additional information such as weather conditions, clothing, specific terrain, time of day and overall feeling is also useful.

Rehabilitation Phase II Programme which focuses on OPD cardiac patients following discharge from the hospital.

## References

1. American Heart Association, 2015, What is Cardiac Rehabilitation?, [Online] Available at: <[http://www.heart.org/HEARTORG/Conditions/More/CardiacRehab/What-is-Cardiac-Rehabilitation\\_UCM\\_307049\\_Article.jsp#.ViTxINlrLIU](http://www.heart.org/HEARTORG/Conditions/More/CardiacRehab/What-is-Cardiac-Rehabilitation_UCM_307049_Article.jsp#.ViTxINlrLIU)> [Accessed 28 September 2015]

**KIH** Riafat Mehmood  
(Physiotherapist, KIH)

## Benefits of Supervised Cardiac Rehabilitation Programme

Regular physical activity helps the heart and rest of the body to get stronger, improves energy level and lifts up the spirit. It also reduces the chance of future heart problems, including heart attack. Counseling and education can help quit smoking, eating right, losing weight, and lowering the blood pressure and cholesterol levels. Counseling may also help to learn stress management and to feel better about health.

Advice and close supervision of healthcare professionals improve the health and lower the risk of future problems. These professionals can also communicate with primary care doctor or cardiologist.

## Future Plans

In the near future, KIH plans to start Cardiac



2. Therapeutic Exercise Foundations and Techniques (5th Edition), CAROLYN KISNER; PT, MS and LYNN ALLEN COLBY, PT, MS
3. Tidy's Physiotherapy (Thirteenth Edition), Edited by Stuart B. Porter BSc (Hons) Grad Dip Phys MCSP SRP, Cert MHS





## FOUR YEARS OF SUFFERING:

## CORRECT DIAGNOSIS MADE THROUGH MSCT CORONARY ANGIOGRAPHY

### KIH CASE STUDY

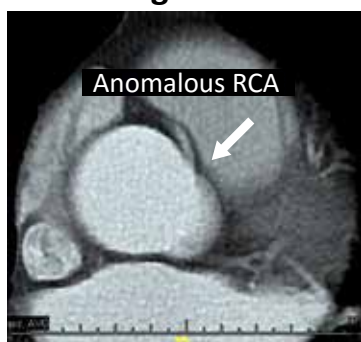
**Dr. Muhammad Akram** (Cardiologist-KIH)

#### Case report:

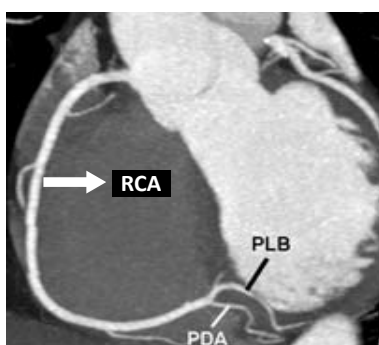
9 year old child from suburb of Jehlum presented with 4 years history of chest pain (typical of angina) and 1 year history of palpitation, when her mother noted child's heart rate was very high. Initially, he was seen by doctors in his home town and was referred to a child specialist (Pediatrician). It was suggested by pediatrician that he does not need any further work up as his examination was unremarkable. Later, he was seen by other doctors in his home town and finally he was referred to a cardiologist by pediatrician after an ECG and chest XR (both not available). Relevant cardiac work up by cardiologist included an ECG and strongly positive stress test for myocardial ischemia. Resultantly, child underwent Cardiac catheterization in December 2014. His cardiac catheter revealed origin of left main stem and right coronary artery (RCA) from left sinus of Valsalva, Left main stem bifurcating in to left anterior descending (LAD) and Circumflex (Cx) artery. Morphologically arteries were normal and child was reassured. No specific treatment was prescribed. He was given pain killer (Ibuprofen).

Child was seen by Gen. (Rtd.) Dr. Waqar Ahmed (Consultant Cardiologist, KIH), who referred him for MSCT coronary angiography for suspected inter-arterial (also called malignant) course of anomalous RCA. MSCT coronary angiography revealed anomalous RCA arising from left sinus of Valsalva, following path between aorta and pulmonary artery (Figure 1) as compared to normal origin and course of RCA (Figure 2)

**Figure 1**



**Figure 1: Another patient with same anomaly**



**Figure 2**



## Discussion:

### Coronary Artery Anomalies (CAA):

Deviations from normal coronary anatomy are termed as variants or coronary artery anomalies. The prevalence of coronary artery anomalies is reported to be approximately 1% to 2% in the general population.[1,2] Clinically abnormality may present with chest pain, remain occult without causing any symptoms or it can have life-threatening consequences, such as myocardial infarction, arrhythmia, or even sudden death.

Various imaging modalities are available for coronary artery assessment. Traditionally, catheter angiography has been used to evaluate the coronary arteries and their anomalies; however, it is an invasive technique, and the precise course of the anomalous coronaries can sometimes be difficult to determine. This is because angiography provides 2-dimensional depiction of coronary anatomy and relies on a limited number of imaging planes. In contrast, MSCT coronary angiography is noninvasive and has multi-planar capabilities. For these reasons, MSCT coronary angiography has emerged as the test of choice for diagnosing coronary anomalies.[2, 3] Various classification systems for CAA have been proposed.[3, 4–8] Table 1; but this article will relate only to anomalous origin from opposite coronary sinus.

**Table 1. Classification of coronary arterial abnormalities**

<b>Anomalies of origin</b>	1. Number of Ostia: Single or Multiple (>2)
	2. Anomalous location of ostium in the appropriate coronary sinus
	3. Origin from opposite coronary sinus
	4. Origin from noncoronary sinus
	5. Origin from pulmonary artery
	6. Abnormalities of angle of origin
<b>Anomalies of course (normal origin)</b>	Myocardial bridging
	Duplication
<b>Anomalies of termination</b>	Coronary artery fistula
	Coronary arcade
	Extracardiac termination
<b>Intrinsic coronary arterial abnormality</b>	Coronary stenosis
	Atresia
	Ectasia/aneurysm





### **Anomalous Origin of the Coronary Artery from Opposite Sinus:**

In this anomaly, the coronary artery arises from the opposite sinus and then takes one of the 4 paths described below. The precise path taken by the artery is important clinically. An interarterial course (previously called as malignant course) carries a high risk of sudden cardiac death, while the other 3 courses are considered nonmalignant or relatively benign.

#### **A: Interarterial course;**

In this case, coronary artery, such as the RCA (Figures 1 and 2), left main, LAD or Cx arises from the opposite sinus and courses between the aortic root and pulmonary artery/right ventricular outflow tract. This anomaly has been linked with sudden cardiac death. Several pathologic processes have been implicated; they include a narrow slit-like orifice, an acute angle of the ostium with a tangential proximal course of the anomalous coronary artery, and an intramural course where the coronary artery exits the aortic lumen and courses into the aortic wall before emerging on the surface. A consequence of this anomaly is arterial compression, which worsens in systole and flow can be further compromised during exercise due to aortic dilatation.

#### **B: Trans-septal course (subpulmonic);**

This refers to the left main or LAD taking a subpulmonic course after arising from right coronary sinus. The artery traverses anteriorly and inferiorly through the interventricular septum and takes an intramyocardial course, giving off septal branches and finally emerging at its normal epicardial position. It is considered a relatively benign anomaly, though in some cases of sudden and unexpected cardiac death has been attributed to this anomaly.

#### **C: Retroaortic course;**

This is the most common coronary artery anomaly, seen in 0.9% of the population. The ectopic coronary artery (more commonly the Cx after arising from right coronary sinus) runs posteriorly between the aortic root and the left atrium. This is considered to be benign anomaly.





## **D: Prepulmonic;**

The anomalous coronary artery, either LAD or Cx arising from right coronary sinus or RCA arising from left sinus, runs anterior to the pulmonary artery or right ventricular outflow tract. This is also a benign anomaly.

## **E: Inverted Coronary Arteries;**

In this rare anomaly, the left coronary system (left main bifurcating into LAD and Cx, only LAD or Cx) arises from the right aortic sinus, and the RCA arises from the left aortic sinus. The anomaly can become hemodynamically significant if the anomalous artery takes interarterial course.<sup>[9]</sup>

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1. Dodd JD, Ferencik M, Liberthson RR, et al. Congenital anomalies of coronary artery origin in adults: 64-MDCT appearance. *AJR Am J Roentgenol*. 2007;188:138–146.
2. Montaudon M, Latrabe V, Iriart X, et al. Congenital coronary arteries anomalies: Review of the literature and multidetector computed tomography (MDCT)-appearance. *Surg Radiol Anat*. 2007; 29:343–355.
3. Kim SY, Seo JB, Do KH, et al. Coronary artery anomalies: Classification and ECG-gated multi-detector row CT findings with angiographic correlation. *Radiographics*. 2006; 26:317–333; discussion 333–334.
4. Patel S. Normal and anomalous anatomy of the coronary arteries. *Semin Roentgenol*. 2008;43:100–112.
5. Angelini P. Coronary artery anomalies--current clinical issues: Definitions, classification, incidence, clinical relevance, and treatment guidelines. *Tex Heart Inst J*. 2002;29:271–278.
6. Angelini P, Velasco JA, Flamm S. Coronary anomalies: Incidence, pathophysiology, and clinical relevance. *Circulation*. 2002;105:2449–2454.
7. Kang JW, Seo JB, Chae EJ, et al. Coronary artery anomalies: Classification and electrocardiogram-gated multidetector computed tomographic findings. *Semin Ultrasound CT MR*. 2008;29:182–194.
8. Vazquez-Jimenez JF, Haager PK, Genius M, et al. Anomalous origin of the left main coronary artery from the right aortic sinus with intramyocardial tunneling through the septum with free portion in the right ventricular cavity. *J Thorac Cardiovasc Surg*. 1999;118:963–965.
9. Dodge-Khatami A, Mavroudis C, Backer CL. Congenital heart surgery nomenclature and database project: Anomalies of the coronary arteries. *Ann Thorac Surg*. 2000;69:S270–297.



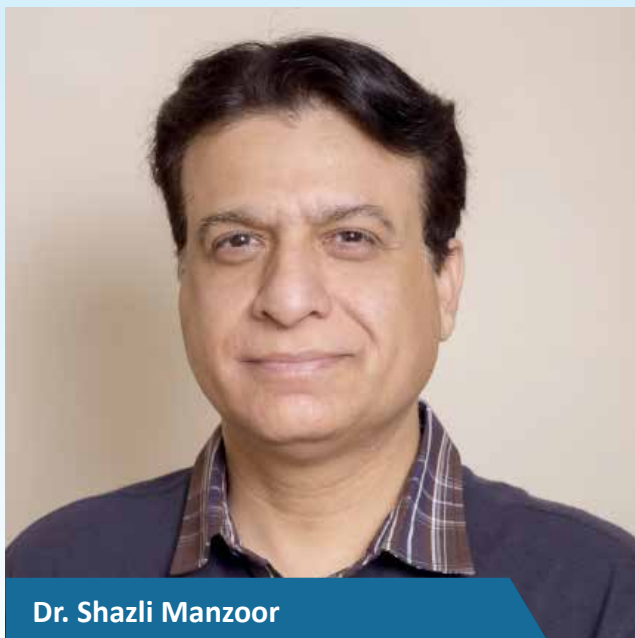


## A Healthy Heart... A Healthy Life

Cardiovascular Disease (CVD) is the world's leading cause of death which kills 17.3 million people every year. 80% of these deaths



occur in developing and under developed countries. In Pakistan, 200,000 people die of CVD every year which is 40% of total deaths occur. Being a trendsetter in healthcare sector and a renowned cardiac center, Kulsum International Hospital celebrated World Health Day with a slogan "A healthy Heart... A Healthy Life". Patients, attendants and all the community was encouraged to adopt a healthy lifestyle and communicated about the risk factors attributed to CVD. Our CSR (Corporate Social Responsibility) activities like these will be continued for the well-being of the community.



**Dr. Shazli Manzoor**

## Medical Director

Dr. Shazli Manzoor has been appointed as a Medical Director of KIH. He is a renowned Pulmonologist and one of the senior consultants in the region. Management feels pleasure to have him on board. His expertise will give a definite edge to KIH.



## Training on Customer Services

Customer services and customer convenience are the roadways to satisfaction. We, at KIH, firmly believe in providing excellent services to our valued customers. To strengthen these skills and set new trends in the industry, Mr. Hanif Jamil (Deputy Manager HR, Saif Healthcare Limited) organized training on Customer Services. Teams from various departments were involved and trained in this training session. Mr. Shumail Sikander (Quality Assurance Officer, KIH) was the lead trainer. Dr. Muhammad Saleem Khan (CEO, Saif Healthcare Limited) and Ms. Ishrat Majeed (Senior Manager HR, Saif Healthcare Limited) distributed certificates among participants.



## KIH Nursing Care

Nurses take care of patients and they are involved in stability of a person's life. Nursing is considered one of the challenging professions. It is a continuous business which never ends. Nursing Department at KIH is known for its exceptional care and it strives to maintain standards. To assure the quality, adequate nurse patient ratio is maintained, infection prevention & control practices are promoted, safe medical administration is practiced, pressure ulcer is kept to minimal level and capacity building of staff is kept on priority. Under the guidance of Ms. Salimah Jalal Baig (Chief of Nursing Services, KIH) trainings were conducted for the staff which include BLS (Basic Life Support) Certification, 12 leads ECG course and ACLS Mega Code.



## New Consultants

We welcome new consultants who have joined KIH lately. All these consultants are from various departments having exceptional skills and high standing in healthcare arena.



**Dr. Muhammad Akram**

### Dr. Muhammad Akram

Dr. Muhammad Akram is a senior Consultant Cardiologist with years of experience in diversified cultures. He has led reputable healthcare institutions in UK, Germany and Saudi Arabia on very senior positions. He did his specialization from UK and received his Fellowship in Cardiac CT from Germany.

## Dr. Muhammad Hanif

Dr. Muhammad Hanif is one of the highly reputed General Surgeons in the region. He is Professor of Surgery and Head of Department at Benazir Bhutto Hospital. He has an experience of Laparoscopic Surgery and Liver transplant with remarkable results.



**Dr. Aamir Ghazanfar**

### Dr. Aamir Ghazanfar

Dr. Aamir Ghazanfar is a General Surgeon and senior consultant with extensive experience in renal transplant. He has done his specialization from Glasgow (UK). Currently, he is the head of department General Surgery at KRL Hospital Islamabad.

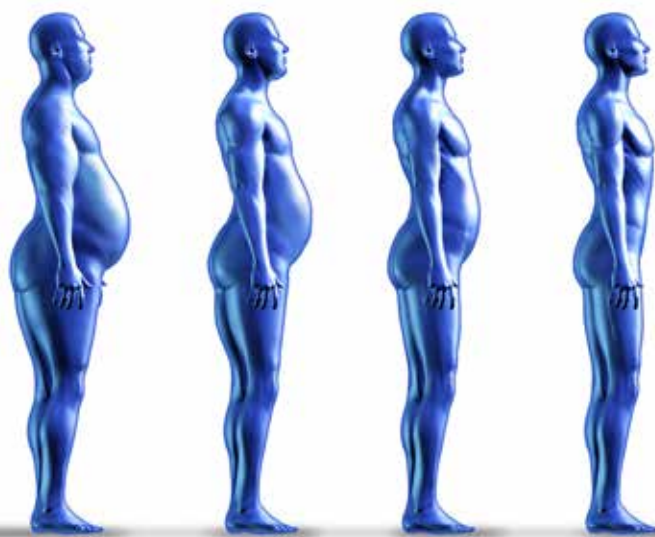
## Bariatric Surgery

Bariatric Surgery is a weight loss surgery which is achieved through reducing size of the stomach. It helps obese patients to regain normal and healthy life. First two Bariatric Surgeries were conducted at KIH by experienced General Surgeons. Results for both of the surgeries were encouraging and patients felt considerable improvement in their body weight.

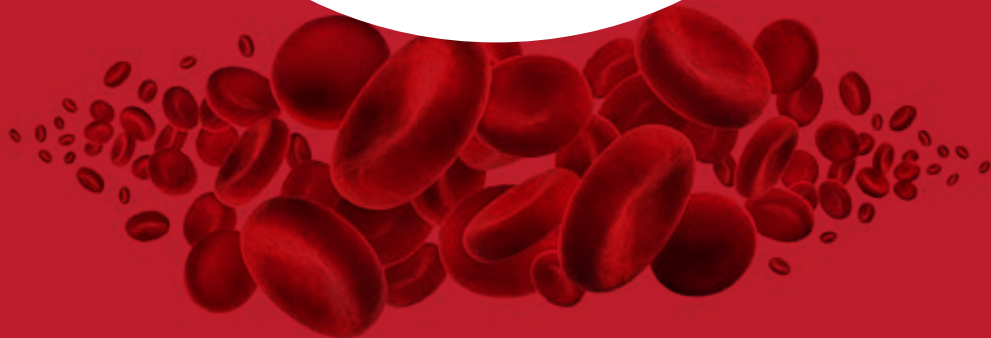
Dr. Muhammad Hanif performed 1st Surgery of a female patient having weight 115 Kg and height 160 cm with BMI 45.

2nd Surgery was performed by Dr. Atif Inam Shami of a female patient having weight 118 Kg and height 165 cm with BMI 43.

For consultations regarding Obesity and Bariatric Surgery, call 051-8446666.



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