

# RAY *of* HOPE

Vol-02 Issue No-4 | Date: 7<sup>th</sup> December, 2019

**ADAPTING INNOVATIVE  
WAYS TO ENSURE BETTER  
MEDICAL OUTCOME**



adding life to years

### Chairman

**Dr. BS Ajaikumar**  
Chairman & CEO  
HCG Group

### Chief Editor

**Dr. Bharat Gadhavi**  
Regional Director,  
HCG Hospitals - Gujarat

### Contributors

**Dr. D.G. Vijay**  
Consultant - Surgical Oncology  
HCG Cancer Centre, Ahmedabad

**Dr. Tanay Shah**  
Consultant - Surgical Oncology  
HCG Cancer Centre, Ahmedabad

**Dr. Jay Shah**  
Consultant - Cardiologist  
HCG Hospitals, Ahmedabad

**Dr. Bhavik Shah**  
Consultant - Critical Care Medicine  
HCG Hospitals, Ahmedabad



**Dr. BS Ajaikumar | Chairman & CEO | HCG Group**

Greetings from HCG!

It gives me great pleasure to take our readers through few of the case studies that showcase the fact that right expertise in alliance with state-of-the-art technology, can achieve desired outcomes and quality of life for our patients.

As a leader in healthcare, we would like to reiterate, that it is our duty to educate, inform the patient about the disease, and explain to them with patience, using the appropriate terminologies. The aim should be to make them aware of the treatment and the outcome in order to eliminate the fear.

At HCG, we take efforts to delve into complicated cases and deliver quality treatment. While we may not cure diseases all the time, we have made it possible to survive by adding more life to years. In due process, we are proud to achieve a better lifestyle for our patients.

Until next time, I wish you good health!

## CONTENTS

### PAGE NO. 3

USE OF INTRAOPERATIVE ULTRASOUND DURING BREAST CONSERVATION SURGERY (BCS) FOR PALPABLE BREAST CANCER – AN EXTREMELY EFFECTIVE APPROACH WITH IMPROVED ONCOLOGICAL OUTCOME.

### PAGE NO. 4

SBRT- A NEW ERA IN PROSTATE CANCER TREATMENT ?

### PAGE NO. 8

INTRAVASCULAR ULTRASOUND (IVUS)

### PAGE NO. 10

ADVANCED CARCINOMA LUNG



## USE OF INTRAOPERATIVE ULTRASOUND DURING BREAST CONSERVATION SURGERY (BCS) FOR PALPABLE BREAST CANCER – AN EXTREMELY EFFECTIVE APPROACH WITH IMPROVED ONCOLOGICAL OUTCOME.

**Dr. D.G. Vijay**  
Consultant - Surgical Oncology  
HCG Cancer Centre, Ahmedabad



**Dr. Tanay Shah**  
Consultant - Surgical Oncology  
HCG Cancer Centre, Ahmedabad

### Abstract:

#### Background:

For clinically low volume breast cancer patients subjected BCS, there is a concern regarding achieving microscopically negative margins and avoiding inadvertent resection of excessive volume of breast tissue. In this study, we utilised intra-operative ultrasound to guide resection in patients subjected to BCS. This was compared to palpation guided resection.

#### Materials and methods:

A total of 80 patients of invasive breast carcinoma (T1-2, N0-1, M0) (39 patients in USG guided BCS – group A and 41 patients in palpation guided BCS group - B) were enrolled. In group-A intraoperative localization was performed using a multifrequency 10-MHz linear array ultrasound probe and tumours were excised under USG guidance.

In group-B, tumour excision was guided by the palpation skills of the surgeon with the aim of achieving grossly negative margin circumferentially. Specimen volume was measured using water displacement technique.

### Results

1 out of 39 patients (2.56%) in group-A and 5 out of 41(12.19%) in group-B had positive margin in histopathology report.

Mean of specimen volume in group-A and B was 42.67 and 57.97 ml respectively [ $p=0.011$ ]

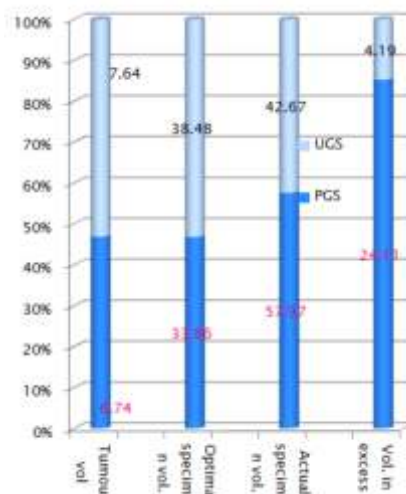
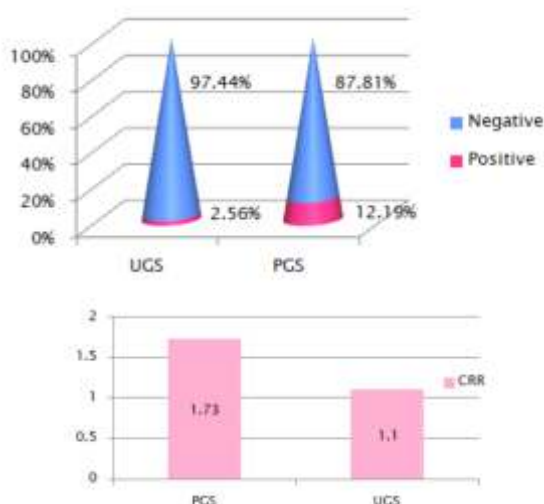
Mean of excess volume removed in study group was 4.19 ml and in control group it was 24.11 ml [ $p<0.01$ ].

Mean of calculated resection ratio in study group was 1.1 and in control group was 1.73 [ $p=0.01$ ].

### Conclusion:

Use of intraoperative ultrasound during BCS may help in improvement in margin clearance, reducing additional procedures and preserving the normal breast parenchyma. The safety, ease and effectivity of this technique may result in its wider application in future.

**Keywords:** Intra-operative ultrasound, margins, excessive volume resection, additional surgery.



# SBRT - A NEW ERA IN PROSTATE CANCER TREATMENT ?

Department of Radiation Oncology | HCG Cancer Centre, Ahmedabad

## INTRODUCTION

Prostate cancer is the fourth most commonly diagnosed cancer in the world, while in India its incidence is lower compared to western part of the world.

Broadly treatment options for prostate cancer include prostatectomy, radiation therapy, either using EBRT / brachytherapy or surveillance depending upon both underlying comorbid condition of patients & pathological characteristic of tumour.

## RATIONAL FOR HYPOFRACTIONATION

Prostate cancer is radiobiologically unique that it has got low alpha to beta ratio which suggest therapeutic benefit from hypofractionation (larger dose per fraction with fewer total fractions).

Advances in imaging technique and treatment delivery have allowed ultra hypofractionated, high dose treatment using a method called SBRT (Stereotactic Body Radiotherapy) also called SABR (Stereotactic Ablative Body Radiotherapy) which provide additional pathway of cell kill by mediating vascular damage, via ceramide mediated apoptosis of endothelial cells, increased cellular expression of inflammatory mediators, immunomodulatory cytokines and death receptors.

## OVERVIEW OF SBRT IN PROSTATE CANCER

SBRT is defined by ASTRO as an external beam radiation therapy (EBRT) used to precisely deliver a high dose radiation to an extracranial target within the body either using a single dose or small number of fractions.

The meta analysis of SBRT in localised prostate cancer was recently published in IJROBP. All prospective series assessing curative intent prostate SBRT for localised prostate cancer reporting bRFS (biochemical

recurrence free survival), physician reported toxicity and patient reported QOL (quality of life) with a minimum of 1 year follow ups were included.

In this metaanalysis Prostate SBRT was defined as treatment delivered over less than 10 treatments with greater than or equal to 5 Gy per fraction. Of them 45%, 4%, 8% patients belong to NCCN low risk, intermediate risk and high risk categories respectively.

Median follow up was 39 months across all patients (range, 12-115 months).

Overall, 5 years bRFS rates was 95.3%. Reported rates by risk groups, the 5 year bRFS for low and intermediate risk disease were 96.7%, and 92.1% respectively.

## PHYSICIAN REPORTED TOXICITY

The primary toxicities associated with prostate SBRT are genitourinary (GU), and gastrointestinal (GI). Acute grade 3 GU toxicity occurred in 0.5% of patients with no grade 4 events.

Acute grade 3 GI toxicity occurred in 0.06% of patients and grade 4 in 0.03%. Late grade 3 GU toxicity rates are estimated to be 2% and late grade 3 GI toxicity rates were estimated to be 1.1%.

Increasing dose of SBRT was associated with improved biochemical control but worse late grade 3 GU toxicity (p=0.014)

## PATIENT REPORTED QOL:

Expanded prostate cancer index composite (EPIC-26) urinary and bowel scores returned to baseline by 2 years post treatment (p=0.9 and 0.09, respectively) and remained non significantly different to scores 5 years post SBRT.



## DISCUSSION:

This analysis demonstrate that there is considerable evidence that prostate SBRT is an effective treatment for localised prostate cancer, with a favourable toxicity profile that has minimal impact on long term urinary and bowel QOL.

More recently published HYPO-RT-PC trial (n=1200) comparing a 7 fraction SBRT regimen to conventional radiation therapy demonstrated that at 5 years post treatment, SBRT was non-inferior regarding biochemical recurrence and late toxicity. This is the first prospective phase 3 trial in this regard.

HYPO-RT-PC trial used a 42.7 Gy in seven fractions, 3 days per week for 2.5 weeks fractionation scheme.

Majority of trials have fewer high risk patients enrolled. So the role of SBRT in high risk patients is not yet clear.

NCCN guidelines suggests SBRT as an alternative to conventional fractionation at clinics with appropriate technology, physics and clinical expertise.

ASTRO 2018 recommendations suggests SBRT for low risk patients and strongly encourages treating intermediate risk patients as part of a clinical trials or multi institutional registries. SBRT is not recommended for high risk disease.

The suggested dose fractionation by ASTRO is 3500 cGy in 5 fractions of 700 cGy or 3625 cGy in 5 fractions of 725 cGy.

To conclude, SBRT is a cost effective treatment offering increased convenience to patients. it is likely that SBRT will continue to achieve increased acceptance amongst the medical community and will become a widely adopted standard of care for treatment of localized prostate cancer.

## FUTURE DIRECTIONS:

National Research Group GU005 (NCT)) is a superiority trial moderate hypofractionation regarding QOL using the EPIC-26. Secondary outcomes relate to investigating if prostate SBRT is also superior regarding disease free survival.

The UK based Prostate Advanced in Comparative

Evidence (PACE A & B trial), which is comparing SBRT (36.25 Gy in 5 fractions) to surgery for operable patients (PACE-A) and SBRT to CF (conventional fractionation) EBRT (PACE-B) for non surgical patients primarily comparing the quality of life using EPIC in SBRT versus surgery.

## LIMITATIONS

First, analysis was a study level meta analysis. Patients level characteristics were extracted and only studies reporting the same outcome at the same time point were pooled, which is an inherent limitations.

Second, biochemical control analyses were limited in that most studies including high risk patients did not separately report outcomes by risk group.

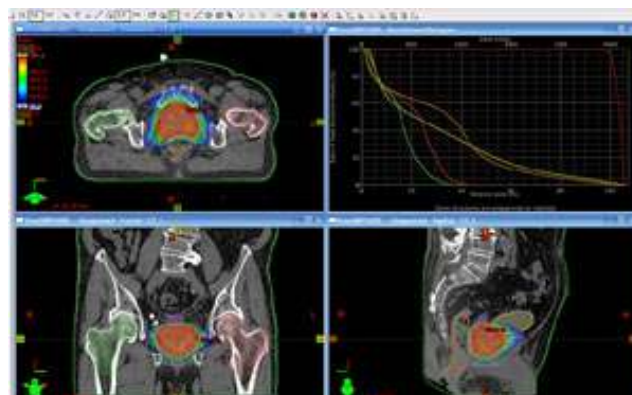
Pelvic nodal radiation therapy was rarely used and its benefit in the context of prostate SBRT is unknown, similar to its unclear benefit with moderate hypofractionated or conventional radiation therapy.

## ADDITIONAL READINGS:

Haque W, Butler BE. The BS. Stereotactic body radiation therapy for prostate cancer- a review. Chinese clinical oncology. 2017;6(2)doi

Jackson CW et al. Stereotactic body radiation therapy for localised prostate cancer. A systemic review and metaanalysis of over 6000 patients treated on prospective studies. International journal for radiation oncology 2019; 104(4);778-779doi

Morgan SC et al. hypofractionated radiation therapy for localised prostate cancer. An ASTRO, ASCO and AUA evidence based guidelines. Journal of clinical oncology; 2018 36; 3411-3430 doi



# GET YOUR ANGIOPLASTY DONE WITH CONFIDENCE

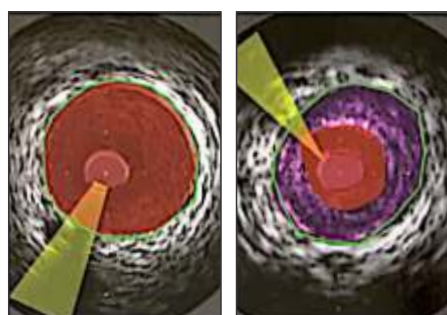
**HCG Hospitals, Ahmedabad has state of art lab for Intravascular Ultrasound (IVUS) guided Angioplasty.**

## **What is IVUS ? (Intravascular Ultrasound)**

- It's an advance Ultra Sound Imaging which allows your doctor to have detailed look into your blood vessels of your heart from inside out.
- This gives a complete information about the affected area and helps to avoid any chance of future angioplasty.

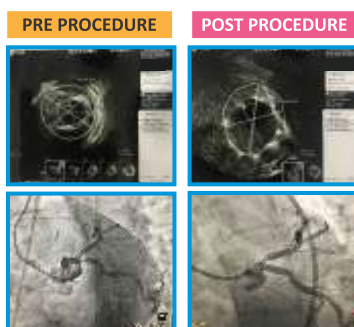
## **What are the benefits of IVUS?**

- This helps to identify the blockage and appropriate treatment can be done accordingly.
- IVUS helps to identify the right stent size.
- This helps to confirm the stent placement to minimize future risk.



Normal


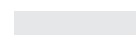



Diseased



IVUS

Angiography

### **What IVUS shows you ?**

-  Vessel wall
-  Catheter
-  Blood
-  Disease
-  Wire



For the 1<sup>st</sup> time in Gujarat

**HCG Brings the Technology  
which cares for your Beauty**

**The revolutionary Scalp Cooling Technology**  
**So just forget chemotherapy-induced hair loss\***

The use of “Cooling Cap” is proven to be an effective way of combatting chemotherapy-induced hair loss and can result in a high level of retention or completely preserve the hair.

We also offer personalised beauty session by beautician to our patients during the treatment.

### HCG Cancer Centre

Sola - Science City Road, Nr. Sola Bridge, S.G. Highway, Ahmedabad - 380060.  
Tel.: 079-404 10 101

www.hcghospitals | info.ao@hcgel.com | Follow us on   



**CANCER HELPLINE**  
**+91 90997 12345**

\*Hair loss depends on type of drug and its effectiveness varies from person to person.



# INTRAVASCULAR ULTRASOUND (IVUS)

Dr. Jay Shah | Consultant - Cardiologist | HCG Hospitals, Ahmedabad

## Coronary Artery Disease (CAD)

Coronary Artery Disease (CAD) is the blockage/narrowing of the arteries in the heart

This narrowing can also be called stenosis. It is usually caused by a buildup of fat or calcium deposits called plaque. Over time, this plaque can build to a total blockage of the artery. This process is called atherosclerosis. When the heart doesn't receive enough blood flow due to blockage in the artery, it may cause mild to severe chest pain or pressure. This pain or pressure can also spread to the arms or jaw. If the arteries are completely blocked, it can result in a heart attack. However, the treatment of CAD has changed in recent years, and many CAD patients are able to return to a normal lifestyle shortly after treatment.

## Coronary Angiography

Coronary angiography is a diagnostic procedure used to identify the disease in the walls of coronary arteries. Based on the information obtained from angiography, physician decides the further course of treatment like medical management, coronary angioplasty or bypass surgery. During angiography procedure a thin tube called 'diagnostic catheter' is inserted at the site of groin or wrist and advanced it to the opening of coronary arteries. After the placement of catheter, contrast medium is injected into coronary arteries and multiple X-ray images are taken by C arm in the cath lab. These 2 dimensional images help physicians determine the disease and its significance and decide further course of action as appropriate.

There are many different treatment options for treating coronary artery disease. The options focus on increasing blood flow to the heart, along with changes to your everyday lifestyle, including diet, physical activity and medications. The type of treatment your doctor recommends for you depends

on your symptoms and how much damage has been done to your heart

Treatment Options for Coronary Artery Disease

1. Medication
2. Coronary Artery Bypass Graft Surgery (CABG)
3. Angioplasty with Coronary artery Stenting.
4. IVUS guided Angioplasty with Coronary Artery Stenting

## IVUS guided Angioplasty with Coronary Artery Stenting

Angioplasty done with the guidance of Intra Vascular Ultrasound imaging is referred to as MUS guided Angioplasty. You can find further details below

## What is IVUS?

Intravascular Ultrasound (IVUS) is a medical imaging technique which allows your doctor to have a detailed look into the blood vessels of your heart from inside-out.

This inside-out view of the blood vessel can provide additional information to your doctor about the appropriate stent required. Once the stent has been placed inside the blood vessel, the inside view of the blood vessel through IVUS can give information if the stent is covering the diseased area completely and if it is properly nugging the vessel wall. An improper placement of the stent can lead to future complications and even lead to a need for another angioplasty.

## How does IVUS work?

IVUS works on the principle of ultrasound waves. The principle of ultrasound imaging is the same as that used in much other medical examination such as an ultrasound of your abdomen. Ultrasound waves bounce against various tissue structures in the body and create a pattern of echoes that are converted into a picture which in turn gets transmitted onto an external monitor.



The IVUS system has biologically compatible tube called the catheter, which is inserted into the blood vessel that is to be examined, At one end of tube I special probe which has ultrasound properties which captures image of the inner aspect of your blood vessels on a real-time basis. The other end of the tube attached to machine which convert the image captured through the ultrasound mechanism and displays them on a monitor. These images provide your doctor with critical clinical information to help him make better treatment choices for you.

### What are the benefits of IVUS?

IVUS aids your doctor to:

**Identify:** The blockage and thus choose an appropriate treatment plan

**Select:** The right stent size

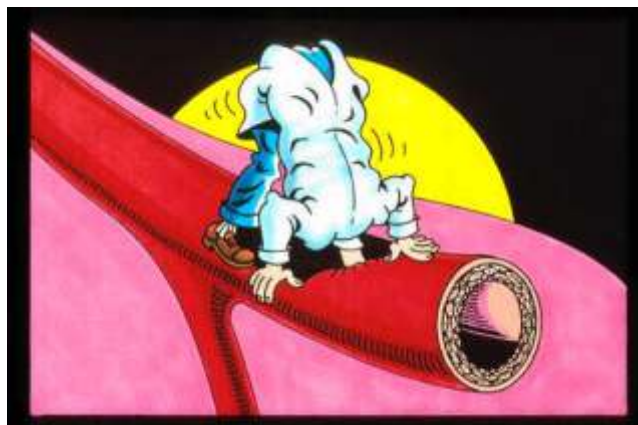
**Confirm:** The stent placement to minimize future risk.

In one clinical study, based solely on the IVUS evaluation, the angioplasty strategy changed in 74% of the cases. Also the use of IVUS during angioplasty procedure has reduced the need for repeat procedure.

### How is IVUS different from Angiography?

Angiography provides a two-dimensional image whereas IVUS offers cross-sectional detail image of the all layers of the blood vessel.

Although Angiography shows the narrowing of the blood vessels, it may not provide any information



(In current practice, IVUS is done in conjunction with angiography, and not as it's replacement.)

about the nature of blockage or about the composition of plaque. This information plays an important role in

helping your doctor make a more informed decision about your treatment plan.

(In current practice, IVUS is done in conjunction with angiography and not as it's replacement.)

**IVUS documents your decisions at every stage and is clinically relevant.**

### Pre-therapy Understanding

- Determining lesion significance
- Morphological assessment
- Interventional sizing

### Stent Optimization

- Stent apposition
- Stent expansion
- Geographic miss
- Edge dissection

### Clinical Outcomes

- TLR and TVF
- Death and M
- Thrombosis

For appropriate treatment at every stage of the procedure choose IVUS.



# CASE STUDY..



**Dr. Bhavik Shah**  
Consultant - Critical Care Medicine  
HCG Hospitals, Ahmedabad

## ADVANCED CARCINOMA LUNG

**T**his 60 yrs old lady was diagnosed with advanced CA lung which has even spread to brain. Because of this , she has also developed right sided weakness of the body. She was treated with radiotherapy for brain metastases and was given steroids and antiepileptic drugs for the same.

She presented to HCG Hospitals with reaction to drugs in the form of eruptions all over skin over face, arms , chest, back and legs. These eruption progressed within days to bullae, ulceration and bleeding all over body. This has even involved oral cavity and lips which has lead to bleeding and pus in the mouth. She was not able to even open her mouth and eat food. Also, her eyes were involved and swollen and she was not able to open it. this is called as STEVEN JOHNSONS SYNDROME / TOXIC EPIDERMAL NECROLYSIS in medical terms ,which is one of the worst form of skin reaction and has very high risk to death of 30-50%.

She was immediately transferred to our isolation room as she was at high risk of getting any secondary infection from the environment and surroundings. A team of ICU specialist, skin specialist, plastic surgeon, eye specialist , senior dietician , physiotherapist and well trained experienced nursing staff was immediately formed to treat her aggressively. She was immediately started on intravenous fluids for hydration and antibiotics to treat and prevent infection. Feeding tube was inserted to facilitate feeding as we cannot give her anything orally.

Such patient requires a very good nursing care and team efforts ( core team of nursing, nutritionist and physiotherapist ) rather than any expert doctors care and this was done very meticulously and with dedication by our ICU nursing team. Special dressings were done frequently for the patient by the nurses taking utmost care not to aggravate the ulcers and to prevent any infection. She was mobilized frequently and aggressive chest physiotherapy and oral care was done. Diet was frequently adjusted by the dietician to provide her with high protein and calories for good skin healing.

The hard work by the nursing team paid off and the patient started showing improvement within 7 days. First progression of skin lesions stopped , then they started healing slowly. Also her eyes got better with treatment and oral cavity started healing with decreased in the pus and bleeding. She started taking food orally after 7 days and the feeding tube was removed.

With Gods grace and with the stupendous efforts of the ICU team, she is now being shifted to ward. The family now plans to continue the chemotherapy for the lung cancer. We wish her all the best in her fight against cancer.

# COMMITTED TO DELIVER HAPPINESS WITH EXCEPTIONAL OUTCOMES



## RFT (Right First Time) Model of Milann



Milann, with 30 years of extensive experience in advanced infertility treatment available with accurate diagnosis and excellent treatment. IVF is not the first solution for infertility, phased treatment of the RFT model gives you the right direction in infertility treatment.

### Services Available

- Primary Male - Female Infertility Evaluation
- IUI IVF / ICSI
- Donor : Eggs / Sperm / Embryo
- Frozen Embryo Transfer
- Gynec Endoscopy

### Advanced Techniques

- Blastocyst Culture
- Laser Assisted Hatching
- MACS for Sperm Processing
- Pre Genetic Screening
- Pre Genetic Diagnostics
- Endometrial Receptivity Array (ERA)
- Vitrification - Egg, Sperm, Embryo

### Our Result

**60%**  
Self Cycle

**80%**  
Ovum Donation

For Appointment: +91 72020 09797

**milann**  
FERTILITY CENTER

First Floor, Satve Complex, Opp. Gopi Dairy, Near Sardar Patel Statue,  
Navrangpura, Ahmedabad - 380 009. Gujarat.

Ahmedabad | Bangalore | Chandigarh | Delhi

[www.milann.co.in](http://www.milann.co.in)



**HCG CANCER CENTRE, AHMEDABAD**  
Sola Science City Road, Nr. Sola Bridge, S.G. Highway,  
Ahmedabad-380060. Ph. +91 79 404 10 101 | Web: [www.hcghospitals.in](http://www.hcghospitals.in)



**HCG HOSPITALS, AHMEDABAD**  
Mithakhali, Ellisbridge, Ahmedabad-380006.  
Ph. +91 79 400 10 101 | Web: [www.hcghospitals.in](http://www.hcghospitals.in)



**HCG CANCER CENTRE, VADODARA**  
Sun Pharma Road, Vadodra - 390012  
Ph. +91 265 230 4000 | Web: [www.hcghospitals.in](http://www.hcghospitals.in)



**HCG HOSPITALS, BHAVNAGAR**  
1139, Sir Patni Road, Meghani Circle, Bhavnagar - 364001  
(M) +91 90991 46666 | Web: [www.hcghospitals.in](http://www.hcghospitals.in)



**HCG HOSPITALS, RAJKOT**  
Ayodhya Chowk, HCG Hospital Road, Nr. Astha Avenue, Off 150Ft Ring Road,  
Rajkot - 360005. Ph.+91 281 6191000 | Web: [www.hcghospitals.in](http://www.hcghospitals.in)

If undelivered, please return to :  
**HCG Hospitals**, Mithakhali, Ellisbridge,  
Ahmedabad-380006

Printed and Published by **DR. BHARAT GADHAVI** on behalf of **HCG MEDI-SURGE HOSPITALS PRIVATE LIMITED** and  
Printed at Print Vision Private Limited., Print Vision House, Opp. Central Bank of India, Ambawadi, Ahmedabad – 380 006. Published at  
HCG MEDI- SURGE HOSPITALS PRIVATE LIMITED. Mithakhali, Ellisbridge, AHMEDABAD – 380 006. **Editor - DR. BHARAT GADHAVI.**

**Place of Publication : HCG MEDI-SURGE HOSPITALS PRIVATE LIMITED, Mithakhali, Ellisbridge, Ahmedabad-380006**

**Please write us : [info.ao@hcgel.com](mailto:info.ao@hcgel.com)**