UNION
connection
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Message from the **Chief Hospital Manager**

Dear Colleagues,

From the windows of my office I have been watching the building of the extension block very closely and patiently. Now that the noise disturbance has mostly gone and that water-cooled air-conditioning plants are being installed on the part of the roof-top directly under my office, through at a distance of about fifty meters away. I realize that the occupation permit of this annex will soon be granted. I can also see that the general layout of the rooftop garden is being shaped out into its prototype. By the time this latter is being completed it will be very pleasing to the eyes with patches of flowers and plants interspersed with recreational area against the green backdrop of a hillock next to the Lion Rock Tunnel with the Amah's Rock (望夫石) atop!

This ancillary building will give us two floors of much needed hospital beds. The lower one will be a direct extension of our maternity ward on the third floor. Thus it will house our new Delivery Suite with six 'first stage' beds and four labour delivery rooms one of which has negative pressure fittings to cater for airborne infection isolation cares. The remaining area will house twenty premium semi-private rooms for newly delivered mothers. These rooms are for single occupancy with en-suite facility to give hundred percent privacy. Certainly these features will bring our renowned maternity service up another notch to take the lead in the private sector.

The upper floor of the building will have direct connection with our mixed female ward on the fifth floor. It will provide 26 premium semi-private rooms all of which have en-suite facilities for single occupancy. Out of these, four will be fitted with negative-pressure ventilator mechanisms to cater for airborne infection isolation purposes. This Ward 5 annex will leave its own nurse station to facilitate efficient work-flow.

With the addition of more than forty beds in the Main Hospital Block, human traffic will be expected to be proportionately increased. Thus the admission office and the cashier department will be handling more clients and also more money transactions. Fortunately, the Healthcheck service or the Health Maintenance Centre will be moved to the second floor to be merged with the Multidisciplinary Plastic and Aesthetic Centre, thus allowing expansion in space for those two above-mentioned front-line services. Moreover, vertical traffic flow to and from the wards are expected to be much more heavy. This latter problem is being solved by the timely replacement of the three lifts which had been in service since Union Hospital's inception in 1994. The replacement exercise will be completed at around mid-April. All three new models of Schindler elevators will have more user-friendly features and they have proven to be 30% more efficient, similarly with their passenger carrying capacity. With all these preliminary efforts we hope that it will be smooth sailing by the time services in the new floors for in-patients and the new laboratory on the level below begin to function.

It is with an elated and satisfied mood that I would like to end this communication. Wishing you and your family a Happy Hong Kong Festival!

Yours most sincerely,

Dr Anthony K Y Lee
Chief Hospital Manager & Medical Director

REBOA: Future Essentials for CPR?

Dr Chang Wai Yin
Consultant in Emergency Medicine
Union Hospital

Despite advances in techniques and skills of resuscitation in recent decades, the successful rate of return of spontaneous circulation (ROSC) for non-traumatic cardiac arrest, either out-of-hospital or in-hospital, remains low. A local study in 2017 showed that only 2.3% of out-of-hospital cardiac arrest patients were able to survive hospital discharge in 30 days in Hong Kong.[1]

Some new novel and innovative technologies and skills, such as dual defibrillation, extracorporeal CPR (eCPR) by ECMO, etc have been under the spotlight in recent years and as a new hope to improve the outcome. REBOA is one of them.

REBOA (Resuscitative Endovascular Balloon Occlusion of Aorta) has long been utilized for resuscitation in non-compressible torso hemorrhage in battlefield since Korean War in 1954.[2] It is now indicated in patients with life threatening traumatic hemorrhage below diaphragm unresponsive to traditional resuscitative method.

This method gradually increases popularity and is later also being applied to non-traumatic hemorrhage, such as GI or obstetric origins.[3]

Alternatively, the blood flow to cerebrum and thoracic organs is increased when REBOA is applied. Animal studies have proven that REBOA can improve arterial diastolic pressure and is a surrogate marker for cerebral and coronary perfusion.[4,5]

Extrapolating the above idea, with the increasing popularity of this procedure, it has been proposed to extend its use as an adjunct also to non-traumatic cardiac arrest condition.

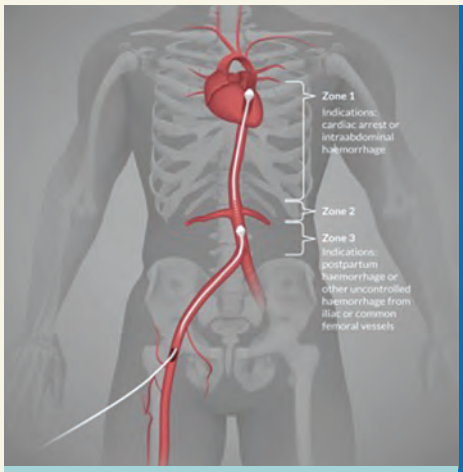


Fig 1. Brede, J.R., Søvik, E. & Rehn, M. Resuscitative endovascular balloon occlusion of the aorta: the postpartum haemorrhage perspective. Crit Care 26, 57 (2022)

To carry out the procedure, an arterial sheath is first inserted, preferably under ultrasound guidance, through the common femoral artery and then a catheter advanced retrograde to descending aorta. A balloon is subsequently inflated at the tip of the catheter at the appropriate aortic level, depending on the indications (Figure 1 showed the aorta zone for balloon replacement under different indication), and blood flow is thus occluded downstream and hemorrhage being controlled.

One study from Norway, published in Journal of American Heart Association in 2019,[6] aimed to study the feasibility and safety issue of establishing REBOA in out of hospital cardiac arrest. The procedure was performed by both physician and paramedic who are well-trained before recruitment of the study. The result demonstrated that REBOA is practicable without sacrificing high quality Advance Cardiac Life Support (ACLS) under this stressful condition. All cases are able to establish REBOA even in out of hospital setting and the mean procedural time is 11.7 minutes. The mean end tidal CO2 increased by 1.75kPa after 1min after inflation of balloon compared with baseline. 6 out of total 10 patients were sucessfully ROSC and 1 can even survive past 30 days. It also showed no intervention-associated adverse event and no delay in transport to hospital related to the procedure. Although there were only 10 patients in this study, it is the first study on this kind in human objects.

Another small pilot study from Switzerland in 2020[7] also showed that it is feasible to insert REBOA in emergency department. 15 patients were recruited in this study but only 9 cases were successfully established REBOA with median time (balloon inflation) 9.5 minutes.

Review articles by Nowadly et al [8] and Mazzoli et al [9] also make comments on REBOA. Firstly, the establishment of REBOA will not involve chest/head/upper extremities areas, thus CPR is largely not affected during the procedure. Secondly, the procedure, under an experienced hand, can be performed in 5-10 mins while CPR is still underway. Thirdly, studies have shown that aortic occlusion by REBOA can improve cerebral and coronary perfusion pressures and blood flow, end-tidal carbon dioxide and overall mortality.

Besides, compared with extracorporeal means of resuscitation (ECMO), which is much more expensive and requires high technical skill, REBOA has a shorter learning curve, and a commercial kit is conveniently available. This makes it more readily implemented into the current practice of resuscitation as an adjunct.

Moreover, the catheter can carry out other objectives.

1. Direct injection of adrenaline to arterial system by the catheter can achieve a higher blood concentration of adrenaline even with lower dosage.

2. REBOA catheter/arterial sheath can also be as a bridging method to other mode of treatment, for example, allowing transition to ECMO (eCPR), intra-aortic balloon pump or cardiac catheterization.

Contraindication

As in traumatic cases, any known or suspected lesion in thoracic aorta, and failure to establish insertion site are contraindicated for REBOA.

Complications

Complications include vascular tear/injury, acute kidney injury, lower leg ischemia causing amputation and even death. There are also reports of vascular injury due to over inflation of the balloon.[10]

Limitation

It is crucial to remember that REBOA is just a temporary measure to improve cerebral and coronary perfusion. It is recommended that optimal time of occlusion is 60 and 90 minutes depending on the site of balloon according to the indication.

Conclusion

REBOA is a pioneering, feasible method and adjunct for non-traumatic cardiac arrest. Still, larger scale studies are underway to further evaluate its usage and safety. If it is proved to be effective, it may become the game changer in resuscitation.

References

1. Siu YC et al. Out-of-hospital cardiac arrest in Hong Kong: a territory-wide study. Hong Kong Med J 2017;23:48–53
2. Hughes et al. Use of an intra-aortic balloon catheter tamponade for controlling intra-abdominal hemorrhage in man. Surgery. 1954; 36(1): 65-8
3. Marcelo Júnior et al. Expanding indications and results for the use of resuscitative endovascular balloon occlusion of the aorta – REBOA. Rev Col Bras Cir 2019 Dec 20;46(5)
4. Olsen, Markus Harboe et al. Randomized blinded trial of automated REBOA during CPR in a porcine model of cardiac arrest. Resuscitation, Volume 160, 39 - 48
5. Dogan EM, Hörer TM, Edström M, Martell EA, Sandblom I, Marttala J, Krantz J, Axelsson B, Nilsson KF. Resuscitative endovascular balloon occlusion of the aorta in zone I versus zone III in a porcine model of non-traumatic cardiac arrest and cardiopulmonary resuscitation: A randomized study. Resuscitation. 2020 Jun;151:150-156.
6. Jostein Rødseth Brede et al. Feasibility of Pre-Hospital Resuscitative Endovascular Balloon Occlusion of the Aorta in Non-Traumatic Out-of-Hospital Cardiac Arrest. J Am Heart Assoc. 2019 Nov 19;8(22):e014394.
7. Levis A, Greif R, Hautz WE, Lehmann LE, Hunziker L, Fehr T, Haenggi M. Resuscitative endovascular balloon occlusion of the aorta (REBOA) during cardiopulmonary resuscitation: A pilot study. Resuscitation. 2020 Nov;156:27-34.
8. Craig D. Nowadly et al. The use of resuscitative endovascular balloon occlusion of the aorta (REBOA) for non-traumatic cardiac arrest: A review. JACEP Open. 2020;1:737–743
9. Mazzoli CA, Chiarini V, Coniglio C, Lupi C, Tartaglione M, Gamberini L, Semeraro F, Gordini G. Resuscitative Endovascular Balloon Occlusion of the Aorta (REBOA) in Non-Traumatic Cardiac Arrest: A Narrative Review of Known and Potential Physiological Effects. Journal of Clinical Medicine. 2022; 11(3):742.
10. Morrison JJ, Galgon RE, Jansen JO, Cannon JW, Rasmussen TE, Eliason JL. A systematic review of the use of resuscitative endovascular balloon occlusion of the aorta in the management of hemorrhagic shock. J Trauma Acute Care Surg. 2016;80(2):324–334.

Recent Update of Management of Knee Osteoarthritis

Dr. Lam Kin Wai
Specialist in Orthopaedics & Traumatology
Union Hospital

Knee osteoarthritis is a common disabling condition that affects more than one-third of persons older than 65 years.

Osteoarthritis is a degenerative joint disease occurring primarily in older adults. It is characterized by erosion of the articular cartilage, hypertrophy of bone at the margins (i.e., osteophytes), and subchondral sclerosis. End stage degeneration can even result in joint contracture. Arthritis is the leading cause of disability in the United States.

Conservative Treatments like weight control, lifestyle modifications are known to be effective in controlling symptomatic OA knee.

Intra-articular corticosteroid injections are effective, Intra-articular corticosteroid injections may provide short-term symptomatic relief in patients with knee osteoarthritis, with low risk of adverse effects. Corticosteroids are presumed to inhibit accumulation of inflammatory cell lines, reduce prostaglandin synthesis, inhibit leukocyte secretion from synovial cells, and decrease interleukin secretion by the synovium. Other injection therapies includes hyaluronic acid injection and platelet rich plasma (PRP) injection. Conservative treatment/injection therapies can be effective treatment for early stage of degeneration/patients with mild symptom

Total joint arthroplasty of the knee should be considered when conservative symptomatic management is ineffective.

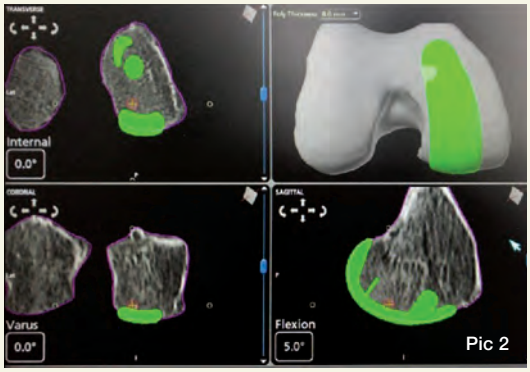
There are few updated developments in knee arthroplasty:

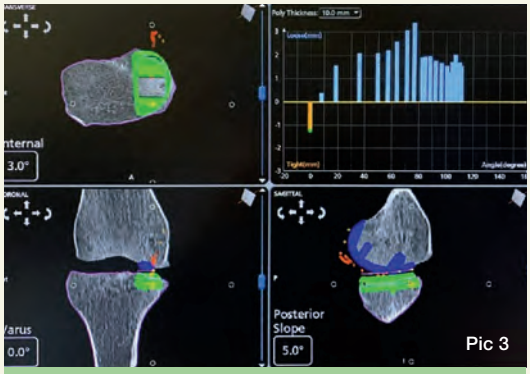
1. Robotic assisted joint replacement

2. Partial knee/unicompartment knee replacement

Partial knee replacement (PKA)/unicompartment knee replacement (UKA) and total knee replacement (TKR) are two different types of replacement joints.

PKA/UKA refers to the replacement of only part of the tissue/ single compartment in a knee joint, more common in medial side. This operation is usually performed on knee and involves replacing damaged or worn parts. UKA surgery has the advantages of including a smaller surgical wound, lesser soft tissue damage, faster postoperative recovery time, better range of knee movement and patient satisfaction. However, patients with end stage degeneration, ruptured anterior cruciate ligament and severe joint contracture are not suitable candidate for partial knee replacement



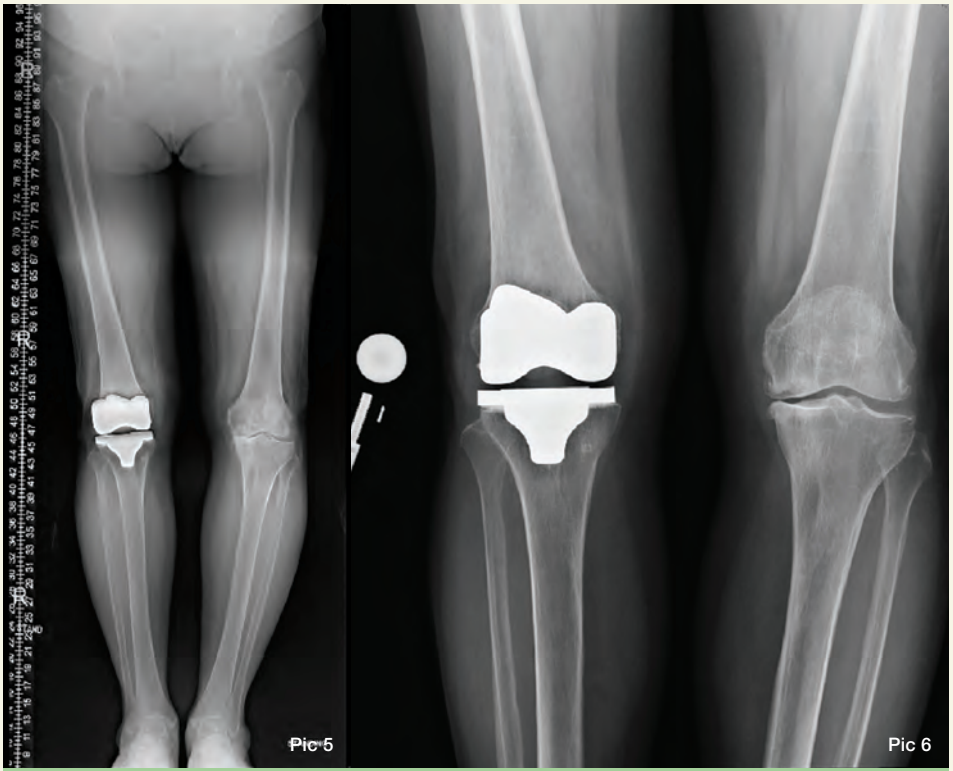


Pic 1-3. Intraoperative planning of robotic assisted knee arthroplasty

Total joint replacement refers to the replacement of the entire joint within one joint, which is generally used for knee and joint replacement. This operation usually involves the removal of all components of the joints and the artificial joints are fixed with an appropriate size implant with cement or by impaction. Total joint replacement surgery has the advantages of long-term and continuous relief of symptoms, overall better implant longevity but it also has longer wound, slower recovery time. However, in patient with endstage osteoarthritis, total knee replacement is still the best and only surgical option.

To improve the accuracy and long term outcome of arthroplasty, robotic assisted joint replacement is now an available option in either partial knee/ total knee and total hip replacement. Before a robotic knee replacement surgery, you'll get specialized CT scans/ interoperation mapping of patients knee that create a 3-D image for bone structure and surrounding tissues. This helps planning of every step for arthroplasty. With the help and guide of robotic arm, cuts can be made with precision to the millimeter in order to minimize human error, picking the right implant size and positioning.

Pic 4. Modern design of unicompartmental knee replacement



Pic 5-6. X-ray of total knee replacement

Pic 7. Post operation X-ray of unicompartmental knee replacement

Union Hospital Surgical Site Infection (SSI) Surveillance April – December 2022

Surgical site infections (SSIs) are unexpected infections of the incision, organ or site that occur after surgery. Handling any SSIs on surgical patients with more complex comorbidities and the emergence of antimicrobial-resistant pathogens are particularly costly and challenging. The prevention of SSIs is therefore increasingly important as the number of surgical procedures performed worldwide is rising.

Deploying a Surgical Site Infection Surveillance Programme not only allows a hospital to obtain SSI rates for the hospital's internal and surgeons' references, but also to identify in early stages any possible risks related to clinical areas, which could then help reduce SSIs. For instance, based on the data collected on the SSI rates of Union Hospital in the past 2 years, the risk of SSI could be seen to be low during 2020 to 2021, 0.36% and 0.00% with gynecology transabdominal and obstetrics operative procedures respectively in 2020, and 0.057% with orthopedics surgeries in 2021.

In 2022, the Hospital Infection Control Unit of Union Hospital carried out another surveillance programme which focused on all patients undergoing general surgeries (including open wound and minimal invasive procedures). The collected data was then analyzed. Throughout the surveillance period from April to December 2022, a total of 1,761 cases of general surgeries matched the surveillance criteria and were reviewed accordingly. Amongst these patients, 1 case was found to be infected (while 18 cases remained non-contactable). Hence, the resulting SSI rate of general surgery was 0.06%.

A satisfactory result was attained again in 2022. Good practices in relation to patient education, pre-operative MRSA screening, aseptic techniques, clinical care and environmental hygiene maintenance have been contributing to this notable achievement. Nevertheless, we shall continue to commit ourselves to ensuring and maintaining the highest standard of hospital care for our patients, as always.

References

Centers for Disease Control and Prevention (CDC). Surgical Site Infection (SSI) Event.
Available from: https://www.cdc.gov/nhsn/pdfs/pscmanual/9pscssicurrent.pdf

New Clinical Sessions

Minimally Invasive Centre	
Booking & Enquiry: 2608 3383	Time Schedule
General Surgery **Dr. Cheng Tsz Ling**	Wed 16:00 – 18:00 Sat 10:00 – 13:00
Developmental-Behavioural Paediatrics **Dr. Lam Wai Fan, Fanny**	Mon to Sat (By Appointment)

Polyclinic (Ma On Shan)	
Booking & Enquiry: 2608 3377	Time Schedule
Clinical Psychology **Ms. Leung Yuen Ping, Eva**	Sat 14:30 – 18:00
Ophthalmology **Dr. Yeung Yat Shan**	Mon 14:30 – 15:30 Thu 15:30 – 16:30

Union DHI Hair Centre	
Booking & Enquiry: 2375 7511	Time Schedule
Dr. Ho Chung Hang	Mon 09:00 – 17:00 Thu 09:00 – 17:00 Sat 09:00 – 13:00

Polyclinic (Tsuen Wan)	
Booking & Enquiry: 2608 3399	Time Schedule
Otorhinolaryngology **Dr. Wong Ka Fai**	Fri 10:00 – 13:00

Union Heart Centre	
Booking & Enquiry: 2608 6777	Time Schedule
Cardiology **Dr. Chan Chi Yuen, Karl**	Tue 09:30 – 12:00 15:00 – 17:00 Wed 15:00 – 17:00 Thu 15:00 – 17:00

Polyclinic (Tsim Sha Tsui)	
Booking & Enquiry: 2375 3323	Time Schedule
General Surgery **Dr. Cheng Tsz Ling**	Mon 09:30 – 11:00 Thu 11:30 – 13:30
Otorhinolaryngology **Dr. Wong Ka Fai**	Mon 09:30 – 12:30
Internal Medicine / Respiratory **Dr. Wong Wing Ching, Louis**	Mon 11:30 – 12:30
Psychiatry **Dr. Tung Ka Yee, Carrie**	Wed 15:00 – 18:00 Fri 15:00 – 18:00

Polyclinic (Tseung Kwan O)	
Booking & Enquiry: 2721 0100	Time Schedule
Orthopaedics & Traumatology **Dr. Lam Kin Wai, Micheal**	Mon 10:00 – 13:00 Tue 16:00 – 18:00 Thu 16:00 – 18:30

New Doctors

Please extend a warm welcoming to the following doctors for joining our clinical team!

Dr. Chan Chi Yuen
Specialist in Cardiology

Dr. Cheng Tsz Ling Chris
Specialist in General Surgery

Dr Lam Wai Fan, Fanny
Specialist in Developmental-Behavioural Paediatrics

Dr. Chang Wai Yin, James
Consultant in Emergency Medicine

Dr. Lam Kin Wai
Specialist in Orthopaedics & Traumatology

Regular Meeting

Meeting: Clinical Pathologic Conference	
Date : Time :	10 May 2023 (Wednesday) 8:30 a.m. – 9:30 a.m.
Co-ordinator:	**Dr Fung Ming Kit, Terence** **Deputy Head, Department of Surgery** **Union Hospital** **Dr. Lui Chi Wai, Philip** **Consultant Pathologist** **Union Hospital**
Venue:	Training Room, 8/F MIC, Hospital Building, Union Hospital
Booking & Enquiry:	2608 3151 (Quality Assurance and Training Dept.)

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