CHAPTER-II

THE CONCEPT AND PRACTICE OF SURGERY IN ANCIENT INDIA: REFERENCES FROM SANSKRIT SOURCES
INTRODUCTION

THE TREATMENT USING MEDICINES FOR THE MAINTAINING OF HEALTH WAS ORIGINATED MUCH EARLIER. IN THOSE TIMES, WARFARE AND FIGHTING TECHNIQUES WERE TAUGHT AMONG COMMONERS, WITH THE INTENTION TO SAVE THE KINGDOMS FROM ENEMIES, AND THE TREATMENT OF INJURIES FORMED DURING THESE TRAINING PERIODS WERE LATER TERMED AS SURGERY.

THE METHOD OF SURGERY DID NOT EXIST DURING THE PERIOD OF PHYSICIANS SUCH AS PYTHAGORAS ETC. WHO PROMOTED KYAÇIKITS; THE CONTRIBUTION IN THE FIELD OF SURGERY, BY OUR COUNTRY IS VERY GREAT. COUNTRIES SUCH AS INDIA, GREECE ETC. HAVE CONTRIBUTED MUCH TO THE FIELD OF SURGERY TREATMENT. NO MANUSCRIPT WHICH EXCELLED OR EQUALED SÜRÜTA SAÆHIT; EXISTED IN THOSE TIMES. IT WAS SAID THAT ALEXANDER THE GREAT
HAD TOOK SURGEONS FROM ANCIENT INDIA TO GREECE DURING HIS CONQUEST.

IN ANCIENT INDIA SURGERY WAS PRACTICED IN PROVINCES LIKE KSI. IT IS BELIEVED THAT THE KING DIVODIS ORIGINATED THE SYSTEM OF SURGERY IN INDIA. MANY REFERENCES ARE FOUND IN ANCIENT INDIAN LITERATURE ABOUT SURGERY AND IT IS DEPICTED HOW THE SEVERE HEADACHE OF KING BHOJA WAS TREATED BY TWO SURGEON BROTHERS BY OPENING HIS SKULL. SURGERIES CONDUCTED BY JIVAKA, THE PHYSICIAN OF BUDDHA CAN BE FOUND. MANY REFERENCES OF SURGERIES CAN BE FOUND IN EPICS LIKE RAMAYANA AND MAHBHARATA. BUT AS THERE WAS A RULE STIPULATED IN SANSKRIT THAT WAR SCENES AND OTHER VIOLENT SCENARIO SHOULD BE EXCLUDED FROM PLAYS, HENCE, NO REFERENCES OF SURGERIES COULD BE FOUND IN SANSKRIT DRAMATIC LITERATURE. THE REFERENCES OF SURGERY IN SANSKRIT LITERATURE ARE DESCRIBED IN THE FOLLOWING CHAPTER.
WHAT IS SURGERY

The word surgery derived from the Greek word Cheiourgik®, via Latin: Chirurgiae', meaning "hand work" is a medical speciality that uses operative manual and instrumental techniques on a patient to investigate and or treat a pathological condition such as disease or injury, to help improve bodily function or appearance, or sometimes for some other reason. An act of performing surgery may be called a surgical procedure, operation, or simply surgery. In this context, the verb ‘operating’ means performing surgery. The adjective ‘surgical’ means ‘pertaining to surgery’; e.g. surgical instruments or surgical nurse.

The patient or subject on which the surgery is performed can be a person or an animal. A surgeon is a person who performs operations on patients. Persons described as
SURGEONS ARE COMMONLY MEDICAL PRACTITIONERS, BUT THE TERM IS ALSO APPLIED TO PEDIATRIC PHYSICIANS, DENTISTS AND VETERINARIANS. SURGERY CAN LAST FROM A FEW MINUTES TO SEVERAL HOURS, BUT IS TYPICALLY NOT AN ONGOING OR PERIODIC TYPE OF TREATMENT. THE TERM SURGERY CAN ALSO REFER TO THE PLACE WHERE SURGERY IS PERFORMED, OR SIMPLY THE CLINIC OF A PHYSICIAN, DENTIST, OR VETERINARIAN.

**DEFINITION OF SURGERY**

SURGERY IS A MEDICAL TECHNOLOGY CONSISTING OF A PHYSICAL INTERVENTION ON TISSUES. AS A GENERAL RULE, A PROCEDURE IS CONSIDERED SURGICAL WHEN IT INVOLVES CUTTING OF A PATIENT'S TISSUES OR CLOSURE OF A PREVIOUSLY SUSTAINED WOUND. OTHER PROCEDURES THAT DO NOT NECESSARILY FALL UNDER THIS RUBRIC, SUCH AS ANGIOPLASTY OR ENDOSCOPY, MAY BE CONSIDERED SURGERY IF THEY INVOLVE 'COMMON' SURGICAL PROCEDURE OR SETTINGS, SUCH AS USE OF A STERILE
ENVIRONMENT, ANESTHESIA, ANTISEPTIC CONDITIONS, TYPICAL SURGICAL INSTRUMENTS, AND SUTURING OR STAPLING. ALL FORMS OF SURGERY ARE CONSIDERED INVASIVE PROCEDURES; SO CALLED 'NON INVASIVE SURGERY' USUALLY REFERS TO AN EXCISION THAT DOES NOT PENETRATE THE STRUCTURE BEING EXCISED (E.G. LASER ABLATION OF THE CORNEA) OR TO A RADIO-SURGICAL PROCEDURE (E.G. IRRADIATION OF A TUMOR). ALTHOUGH SOME PHYSICIANS DO NOT SUPPORT THE INVASIVE PROCEDURES.

TYPES OF SURGERY

SURGICAL PROCEDURES ARE COMMONLY CATEGORIZED BY URGENCY, TYPE OF PROCEDURE, BODY SYSTEM INVOLVED, DEGREE OF INVASIVENESS, AND SPECIAL INSTRUMENTATION. ELECTIVE SURGERY IS DONE TO CORRECT A NON LIFE THREATENING CONDITION, AND IS CARRIED OUT AT THE PATIENT'S REQUEST, SUBJECT TO THE SURGEON'S AND THE SURGICAL FACILITY'S AVAILABILITY. EMERGENCY SURGERY IS SURGERY WHICH MUST BE DONE QUICKLY.
TO SAVE LIFE, LIMB, OR FUNCTIONAL CAPACITY. EXPLORATORY SURGERY IS PERFORMED TO AID OR CONFIRM A DIAGNOSIS. THERAPEUTIC SURGERY TREATS A PREVIOUSLY DIAGNOSED CONDITION.

AMPUTATION INVOLVES CUTTING OFF A BODY PART, USUALLY A LIMB OR DIGIT. RE-PLANTATION INVOLVES REATTACHING A SEVERED BODY PART. RECONSTRUCTIVE SURGERY INVOLVES RECONSTRUCTION OF AN INJURED, MUTILATED, OR DEFORMED PART OF THE BODY. COSMETIC SURGERY IS DONE TO IMPROVE THE APPEARANCE OF AN OTHERWISE NORMAL STRUCTURE. EXCISION IS THE CUTTING OUT OF AN ORGAN, TISSUE, OR ANY OTHER BODY PART FROM THE PATIENT. TRANSPLANT SURGERY IS THE REPLACEMENT OF AN ORGAN OR BODY PART BY INSERTION OF ANOTHER FROM DIFFERENT HUMAN (OR ANIMAL) INTO THE PATIENT. REMOVING AN ORGAN OR BODY PART FROM A LIVE HUMAN OR ANIMAL FOR USE IN TRANSPLANT IS ALSO A TYPE OF SURGERY.
WHEN SURGERY IS PERFORMED ON ONE ORGAN SYSTEM OR STRUCTURE, IT MAY BE CLASSED BY THE ORGAN, ORGAN SYSTEM OR TISSUE INVOLVED. EXAMPLES INCLUDE CARDIAC SURGERY (PERFORMED ON THE HEART), GASTROINTESTINAL SURGERY (PERFORMED WITHIN THE DIGESTIVE TRACT AND ITS ACCESSORY ORGANS), AND ORTHOPEADIC SURGERY (PERFORMED ON BONES OR MUSCLES).

MINIMALLY INVASIVE SURGERY INVOLVES SMALLER OUTER INCISION TO INSERT MINIATURIZED INSTRUMENTS WITHIN A BODY CAVITY OR STRUCTURE, AS IN LAPAROSCOPIC SURGERY OR ANGIOPLASTY. BY CONTRAST, AN OPEN SURGICAL PROCEDURE REQUIRES A LARGE INCISION TO ACCESS THE AREA OF INTEREST. LASER SURGERY INVOLVES USE OF A LASER FOR CUTTING TISSUE INSTEAD OF A SCALPEL OR SIMILAR SURGICAL INSTRUMENTS. MICROSURGERY INVOLVES THE USE OF AN OPERATING MICROSCOPE FOR THE SURGEON TO SEE SMALL STRUCTURES. ROBOTIC SURGERY MAKES USE
OF A SURGICAL ROBOT, SUCH AS THE DA VINCI OR THE ZEUS SURGICAL SYSTEMS, TO CONTROL THE INSTRUMENTATION UNDER THE DIRECTION OF THE SURGEON. NEW DEVELOPMENT HAS SHIFTED TOWARDS DEPLOYING A SURGICAL ROBOT SYSTEM IN MOBILE SETTINGS AND EXTREME ENVIRONMENTS SUCH AS THE BATTLEFIELD OR NATURAL DISASTER AREAS WITH SURGEONS OPERATING WIRELESSLY."

HISTORY OF SURGERY

AT LEAST TWO PREHISTORIC CULTURES HAD DEVELOPED FORMS OF SURGERY. THE FAMOUS EGYPTIAN ARCHITECT AND DOCTOR, IMHOTOP, STRUCTURED PYRAMIDS AS WELL AS HAD PHENOMENAL FEATS IN MEDICINE IN A LAND WHERE WOUNDS AND OTHER MEDICAL PRACTICES WERE COMMON.

THE OLDEST, FOR WHICH THERE IS EVIDENCE TO WHICH A HOLE IS DRILLED OR SCRAPED INTO THE SKULL, THUS EXPOSING THE DURA MATER IN ORDER TO TREAT HEALTH PROBLEMS RELATED TO
INTRACRANIAL PRESSURE AND OTHER DISEASES. EVIDENCE HAS BEEN FOUND IN PREHISTORIC HUMAN REMAINS FROM NEOLITHIC TIMES, IN CAVE PAINTINGS, AND THE PROCEDURE CONTINUED IN USE WELL INTO RECORDED HISTORY. SURPRISINGLY, MANY PREHISTORIC AND PRE-MODERN PATIENTS HAD SIGNS OF THEIR SKULL STRUCTURE HEALING SUGGESTING THAT MANY SURVIVED THE OPERATION. IN ANCIENT INDIA, REMAINS FROM THE EARLY HARAPPAN PERIODS OF THE INDUS VALLEY CIVILIZATION (C. 3300 BC) SHOW EVIDENCE OF TEETH HAVING BEEN DRILLED DATING BACK 9,000 YEARS. A FINAL CANDIDATE FOR PREHISTORIC SURGICAL TECHNIQUES IS ANCIENT EGYPT, WHERE A MANDIBLE DATED TO APPROXIMATELY 2650 B.C. SHOWS TWO PERFORATIONS JUST BELOW THE ROOT OF THE FIRST MOLAR, INDICATING THE DRAINING OF AN ABSCESED TOOTH.

THE OLDEST KNOWN SURGICAL TEXTS DATE BACK TO ANCIENT INDIA ABOUT 3500 YEARS AGO
AND MANY EVIDENCES FOUND AROUND THE INDUS VALLEY CIVILIZATION SHOW THAT EVEN DENTISTRY IS PRACTICED THEN\textsuperscript{13}. MEHRGARH IS NOW SEEN AS A PRECURSOR TO THE INDUS VALLEY CIVILIZATION. DISCOVERIES AT MEHRGARH CHANGED THE ENTIRE CONCEPT OF THE INDUS VALLEY CIVILIZATION. IN APRIL 2006, IT WAS ANNOUNCED IN THE SCIENTIFIC JOURNAL 'NATURE' THAT THE OLDEST (AND FIRST EARLY NEOLITHIC) EVIDENCE FOR THE DRILLING OF HUMAN TEETH IN VIVO (I.E. IN A LIVING PERSON) WAS FOUND IN MEHRAGARH. ACCORDING TO THE AUTHORS, THEIR DISCOVERIES POINT TO A TRADITION OF PROTO DENTISTRY IN THE EARLY FARMING CULTURES OF THAT REGION. HERE WE DESCRIBE ELEVEN DRILLED MOLAR CROWNS FROM NINE ADULTS DISCOVERED IN A NEOLITHIC GRAVEYARD IN PAKISTAN THAT DATES FROM 7500 TO 9000 YEARS AGO.

SU\textsubscript{2}RUTA IS CALLED AS THE FATHER OF SURGERY\textsuperscript{14} AND THE FIRST KNOWN SURGEON IN THE WORLD AND EVEN WROTE A BOOK ON AND HIS
PRACTICES REACHED THE MIDDLE EAST AND LATER TO THE WEST. IN HIS BOOK, HE DESCRIBED OVER 120 SURGICAL INSTRUMENTS, 300 SURGICAL PROCEDURES AND CLASSIFIES HUMAN SURGERY INTO EIGHT CATEGORIES. Sūrūta is also known as the father of plastic surgery and cosmetic surgery. He was a surgeon from the Dhanvantari School of Ēyurveda. In ancient Egypt surgeries were performed by priests, specialized in medical treatments similar to that of today.

The procedures were documented on papyrus and described patient case files; the Edwin Smith Papyrus (held in the New York Academy of Medicine) documents surgical procedures based on anatomy and physiology, while the Ebers Papyrus describes healing based on magic. Their medical expertise was later documented by Herodotus: 'The practice of medicine is very specialized among them.'
EACH PHYSICIAN TREATS JUST ONE DISEASE. THE COUNTRY IS FULL OF PHYSICIANS, SOME TREAT THE EYE, SOME THE TEETH, SOME OF WHAT MATTERS 'PERTAINS TO THE ABDOMEN, AND OTHERS INTERNAL DISEASES.'

OTHER ANCIENT CULTURES TO HAVE SURGICAL KNOWLEDGE INCLUDE EGYPT, CHINA AND GREECE. THE HIPPOCRATIC OATH WAS AN INNOVATION OF THE GREEK PHYSICIAN HIPPOCRATES. HOWEVER ANCIENT GREEK CULTURE TRADITIONALLY CONSIDERED THE PRACTICE OF OPENING THE BODY TO BE REPULSIVE AND THUS LEFT KNOWN SURGICAL PRACTICES SUCH AS LITHOTOMY TO SUCH PERSONS AS PRACTICE. IN CHINA, HUA Tuo WAS A FAMOUS CHINESE PHYSICIAN DURING THE EASTERN HAN AND THREE KINGDOMS ERA. HE WAS THE FIRST PERSON TO PERFORM SURGERY WITH THE AID OF ANESTHESIA, ALBEIT A RUDIMENTARY AND UN SOPHISTICATED FORM. IT WAS UNFORTUNATE, HOWEVER THAT AFTER THE ERA OF
HUA TUO, SURGERY WAS LARGELY NEGLECTED UNTIL MODERN TIMES.

IN THE MIDDLE AGES, SURGERY WAS DEVELOPED TO A HIGH DEGREE IN THE ISLAMIC WORLD. ABULCASIS (ABU AL-QASIM KHALAF IBN AL-ABBAS AL-ZAHRAWI), AN ANDALUSIAN ARAB PHYSICIAN AND SCIENTIST WHO PRACTICED IN THE ZAHRA SUBURB OF CÓRDOBA, WROTE MEDICAL TEXTS THAT SHAPED EUROPEAN SURGICAL PROCEDURES UP UNTIL THE RENAISSANCE. HE IS ALSO OFTEN REGARDED AS THE FATHER OF SURGERY.

IN EUROPE, BY THE FIFTEENTH CENTURY AT THE LATEST, SURGERY HAD SPLIT AWAY FROM PHYSICS AS ITS OWN SUBJECT, OF A LESSER STATUS THAN PURE MEDICINE, AND INITIALLY TOOK THE FORM OF A CRAFT TRADITION UNTIL ROGERIUS SALERNITANUS COMPOSED HIS CHIRURGIA, LAYING THE FOUNDATION FOR MODERN WESTERN SURGICAL MANUALS UP TO THE MODERN TIME. LATE IN THE NINETEENTH CENTURY, BACHELOR OF SURGERY DEGREES BEGAN
TO BE AWARDED WITH THE (MB), AND THE MASTERSHIP BECAME A HIGHER DEGREE, USUALLY ABBREVIATED CHM OR MS IN LONDON, WHERE THE FIRST DEGREE WAS MB, BS.

BARBER SURGEONS GENERALLY HAD A BAD REPUTATION THAT WAS NOT TO IMPROVE UNTIL THE DEVELOPMENT OF ACADEMIC SURGERY\textsuperscript{19} AS A SPECIALITY OF MEDICINE, RATHER THAN AN ACCESSORY FIELD.\textsuperscript{20} BASIC SURGICAL PRINCIPLES FOR ASEPSIS ETC ARE KNOWN AS HALSTEADS PRINCIPLES.

MODERN SURGERY DEVELOPED RAPIDLY WITH THE SCIENTIFIC ERA. AMBROISE PARE PIONEERED THE TREATMENT OF GUNSHOT WOUNDS, AND THE FIRST MODERN SURGEONS WERE BATTLE FIELD DOCTORS IN THE NAPOLEONIC WARS\textsuperscript{21}. NAVAL SURGEONS WERE OFTEN BARBER SURGEONS, WHO COMBINED SURGERY WITH THEIR MAIN JOBS AS BARBERS. THREE MAIN DEVELOPMENTS PERMITTED THE TRANSITION TO MODERN SURGICAL APPROACHES
CONTROL OF BLEEDING, CONTROL OF INFECTION AND
CONTROL OF PAIN (ANAESTHESIA).

SURGERY IN INDIAN TRADITION

Surgery was widely used in Indian medicine. In the ancient world, Indian surgeons performed the most elaborate operations. Over 121 different steel instruments were used to sew up wounds, drain fluid, remove kidney stones and to perform plastic surgery. An official punishment for adultery was to cut off your nose, so surgeons had plenty of opportunities to reconstruct and refine noses. Source of pre-Christian era, such as the R̄iM̄̄ya, a mentions remarkable feats of surgery as having taken place in the legendary past. Thus we have reference to the transplantation of an eyeball; on another occasion the god Indra, rendered impotent by a curse, was cured by the transplantation of a ram's testes the
SEMI-LEGENDARY JCVAKA, THE FAMOUS PHYSICIAN OF BUDDHA’S DAY, IS ALSO REPORTED TO HAVE PERFORMED REMARKABLE CURES INVOLVING DEEP SURGERY$^{24}$.

WHAT THE BEST INDIAN SURGEONS COULD DO IN INTERNAL SURGERY WAS THE REMOVAL OF CALCULI FROM THE BLADDER; THE REPLACEMENT OF BOWELS EXPOSED AS A RESULT OF A WOUND, STITCHING THE STOMACH WALL; AND CAESAREAN SECTION IN THE CASE OF MOTHERS WHO DIED BEFORE GIVING BIRTH. THEY WERE BRILLIANT, HOWEVER, AT EXTERNAL OPERATIONS, AND THEIR ACHIEVEMENTS IN PLASTIC SURGERY WERE UNRIVALED ANYWHERE IN THE WORLD UNTIL THE EIGHTEENTH CENTURY, WHEN THE INDIAN ART OF RHINOPLASTY WAS STUDIED BY EUROPEAN SURGEONS.$^{25}$

YET THE EARLIEST INDIAN MEDICAL TEXT, THAT OF CARAKA, DOES NOT MENTION SURGICAL OPERATIONS AT ALL. EVIDENTLY, FROM THE POINT
OF VIEW OF THE COMPILER, SURGERY WAS AN ASPECT OF MEDICINE BENEATH THE NOTICE OF THE VAIDYA, TO BE PERFORMED BY LOW CASTE PERSONS SUCH AS BARBERS. THE SÜRUTA SAMHITA, HOWEVER, DEVOTES MUCH SPACE TO THE SUBJECT. FROM THE POINT OF VIEW OF THE MEDICAL TEXTS, THE VAIDYA MIGHT INCUR GRAVE RITUAL POLLUTION. HE MIGHT BE COMPELLED IN HIS PROFESSIONAL CAPACITY TO ENTER THE HOMES OF MEN OF MUCH LOWER CASTE THAN HE, TO TOUCH THE EXCRETA OF SUCH PEOPLE, AND EVEN TO SIP A FEW DROPS OF THEIR URINE FOR DIAGNOSTIC PURPOSES. THE TEXTS DO NOT APPARENTLY ENVISAGE PURGING CEREMONIES TO EXPUNGE SUCH IMPURITY, AND EVIDENTLY THE VAIDYAS GENERALLY TOOK RELIGIOUS TABOOS QUITE LIGHTLY. AS PART OF THE STUDENT'S TRAINING, IT WAS NOT CONSIDERED IMPROPER FOR HIM TO PRACTICE DENTISTRY BY EXTRACTING THE TEETH OF DEAD ANIMALS, OR TO GAIN COMMAND
OF THE SCALPEL BY TRYING TO MAKE AN INCISION IN ANIMALS INFLATED BLADDER WITHOUT CUTTING THROUGH IT AND RELEASING THE AIR.

THE TABOO ON CONTACT WITH HUMAN CORPSES WAS SO STRONG,\(^{30}\) HOWEVER, THAT EVEN THE EMANCIPATED VÄIDYÄ DARED NOT INFRINGE UPON IT. THE PRACTICE OF DISSECTION OF CORPSES 'HAD TO FIGHT AGAINST ALL THE RULES OF ARCHAIC HYGIENE' (ZIMMER 1948: 175), AND, AGAINST A TABOO BASED ESSENTIALLY ON MANY GENERATIONS OF PRACTICAL EXPERIENCE, IT COULD NOT WIN. SÜRUTA DID THE BEST HE COULD TO TRAIN HIS APPRENTICES, BY PLACING A NEW CORPSE IN A BASKET IN A RUNNING RIVER FOR A WEEK. THUS, IF WE ARE TO BELIEVE THE TEXTBOOK, THE FLESH DISINTEGRATES SO THAT IT MAY BE REMOVED BY SCRUBBING WITH A LONG, STIFF BRUSH TO EXPOSE THE INTESTINES, WHICH MAY THUS BE STUDIED WITHOUT PHYSICAL CONTACT. THIS METHOD MAY HAVE BEEN FOLLOWED IN
practice, because the texts show more accurate knowledge of the lower viscera than of the brain and lungs, which are covered by bones and would not be rendered visible by such treatment.

This is as far as the Vaidya dared to go in the study of anatomy. No doubt he supplemented his knowledge by examining the bodies of those accidentally or judicially killed, as well as corpses on the battlefield. It would have been theoretically possible for him to hire the Untouchables who served as executioners and cremation attendants to dissect corpses for him, but we have no record of this being done. Nevertheless there are accounts, all from texts of the earlier period, which show that the dissection of a corpse was not wholly unknown.

Ancient Indian doctors had no clear
KNOWLEDGE OF THE FUNCTION OF THE BRAIN, AND BELIEVED WITH MANY ANCIENT PEOPLES THAT THE HEART WAS THE SEAT OF INTELLIGENCE. THEY REALIZED, HOWEVER, THE IMPORTANCE OF THE SPINAL CORD, AND KNEW OF THE EXISTENCE OF THE NERVOUS SYSTEM, THOUGH IT WAS NOT PROPERLY UNDERSTOOD. THE PROGRESS OF PHYSIOLOGY AND BIOLOGY WAS IMPEDED BY THE TABOO ON CONTACT WITH DEAD BODIES, WHICH MUCH DISCOURAGED DISSECTION AND THE STUDY OF ANATOMY, ALTHOUGH SUCH PRACTICES WERE NOT COMPLETELY UNKNOWN. DESPITE THEIR INACCURATE KNOWLEDGE OF PHYSIOLOGY, WHICH WAS BY NO MEANS INFERIOR TO THAT OF MOST ANCIENT PEOPLES, INDIA EVOLVED A DEVELOPED EMPIRICAL SURGERY.

THE CAESARIAN SECTION WAS WELL KNOWN, BONE SETTING REACHED A HIGH DEGREE OF SKILL AND PLASTIC SURGERY WAS DEVELOPED FAR BEYOND ANYTHING KNOWN ELSEWHERE AT THE TIME. ANCIENT INDIAN SURGEONS WERE EXPERT AT THE REPAIR OF
NOSES, EARS AND LIPS, LOST OR INJURED IN BATTLE OR BY JUDICIAL MUTILATION. IN THIS RESPECT INDIAN SURGERY REMAINED AHEAD OF EUROPEAN UNTIL THE 18TH CENTURY, WHEN THE SURGEONS OF THE EAST INDIA COMPANY WERE NOT ASHAMED TO LEARN THE ART OF RHINOPLASTY FROM THE INDIANS.

THE ARTHAŚĀTRA ASCRIBED TO KAUṬILIYA, IN ITS SECTION ON THE DETECTION AND PUNISHMENT OF SERIOUS CRIME, RECOMMENDS THAT THE BODIES OF THOSE DYING IN SUSPICIOUS CIRCUMSTANCES SHOULD BE PRESERVED IN OIL FOR EXAMINATION AS TO THE CAUSE OF DEATH, AND REFERS TO THE EXAMINATION OF THE CONTENTS OF THE STOMACH FOR TRACES OF POISON.

A REMARKABLE STORY CONCERNING THE EMPEROR Ā︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁︁vertiser
ADVANCES TO THE CROWN PRINCE KUNALA, WHO INDIGNANTLY REJECTED HER, THOUGH HE DID NOT REPORT HIS STEPMOTHER'S EVIL CONDUCT TO HIS FATHER. SOON AFTER THIS, ÂKOÂKA WAS TAKEN SERIOUSLY ILL WITH A RARE DISEASE INVOLVING THE MOST UNPLEASANT SYMPTOMS. TISYARAKSITA FEARED THAT IF HE DIED KUNALA WOULD COME TO THE THRONE AND PUNISH HER FOR HER IMMORAL BEHAVIOR, AND SO SHE DECIDED TO RESTORE ÂKOÂKA TO HEALTH AT ALL COSTS. SHE TOLD HIM THAT IF HE WOULD GRANT HER WHATEVER BOON SHE DESIRED SHE WOULD CURE HIM, AND HE PUT HIMSELF ENTIRELY IN HER HANDS. SHE ORDERED A SEARCH TO BE MADE FOR A SICK MAN WITH EXACTLY THE SAME SYMPTOMS AS THE KING. WHEN ONE WAS FOUND HE WAS BROUGHT TO HER IN HER PRIVATE APARTMENTS, AND SHE KILLED HIM ON THE SPOT. SHE CUT OPEN HIS STOMACH AND FOUND THAT IT CONTAINED AN ENORMOUS WORM. SHE TREATED THE WORM WITH
STRONG ARID PUNGENT SUBSTANCES SUCH AS PEPPER AND GINGER, BUT IT WAS UNAFFECTED. AT LAST SHE TRIED ONIONS, AND THESE KILLED IT. SO SHE FED AÇOKA WITH LARGE QUANTITIES OF ONIONS, WHICH FOR OBVIOUS REASONS ARE NOT NORMALLY EATEN BY HIGH CASTE PEOPLE.

THE WORM WAS ELIMINATED, AND THE EMPEROR WAS CURED. THIS STORY, INCREDIBLE THOUGH IT MAY BE, SURELY INDICATES THAT IN SOME CIRCLES, THE DRASTIC MEANS USED BY THE WICKED QUEEN TO DISCOVER THE CAUSE AND CURE THE KING'S ILLNESS INDICATES THAT IDEAS PREFIGURING MODERN SCIENTIFIC METHODS OF INVESTIGATION AND EXPERIMENT WERE AT WORK. NEVERTHELESS, THE INELUCTABLE TABOO ON CONTACT WITH THE DEAD PREVENTED THE DEVELOPMENT OF ANATOMICAL KNOWLEDGE, AND IT WAS NOT UNTIL 1835 THAT A VAIDYA STRONGLY INFLUENCED BY WESTERN IDEAS, PAÇIT MADHUDUDAN GUPTA, HAD THE TEMERITY TO DISSECT A CORPSE (KESWANI...
1970-357). The complete ignorance and uncertainty of even the best educated Indians of earlier times about the nature and functions of the various organs of the body is hard to realize nowadays. The interior of the body was almost as mysterious as the centre of the Earth, which was the realm of wonderful snake spirits, Nāgas, who dwelled in cavernous realms lighted by precious stones of unimaginable radiance. The body too contained a mysterious serpent power, Kūranī, which could be raised by yoga from its seat at the base of the spine to pass through the vein Suāumnī in the spinal cord, progressing through the six centers of force (Cakrā) to the topmost Sahasrāra, when the adept achieved highest bliss and immeasurable supernatural power.

SURGERY IN THE TIME OF VEDAS

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THE TEACHINGS OF VEDAS ARE THE THEORETICAL CORE OF ĖYURVEDA, THE PRACTICE OF MEDICINE IN INDIA HAS ALSO BEEN INFLUENCED BY THE LATER SPIRITUAL TRADITIONS OF INDIA. THE PRACTITIONERS OF ĖYURVEDA WERE ALSO SKILLED SURGEONS, CAPABLE OF PLASTIC SURGERY ON THE FACE AND OTHER PARTS OF THE BODY. ALREADY AT THE TIME OF THE ĪGVEDA, SURGEONS SEEM TO HAVE BEEN ABLE TO DEAL WITH BATTLE WOUNDS AND FIT AMPUTEES WITH ARTIFICIAL METAL LIMBS.⁸³

PRIMITIVE SORT OF SURGERY IS AS OLD AS WARFARE. THE ARYAN INVADERS OF INDIA HAD TO WAGE FIERCE BATTLE WITH THE INHABITANTS OF THE INDUS VALLEY BEFORE THEY CONQUERED THEM. DURING THE WARS, SURGEONS WERE FREQUENTLY REQUISITIONED TO ATTEND ON THE WOUNDED. THUS IN THE ĪGVEDA WE READ OF THE AMPUTATIONS OF LEGS AND THE FITTING WITH ARTIFICIAL LIMBS, ENUCLEATING OF EYES, AND
EXTRACTION OF ARROW SHAFTS FROM THE LIMBS OF THE WOUNDED.

THERE ARE SO MANY REFERENCES IN THE VEDAS REGARDING THE REMARKABLE SURGICAL TECHNIQUES OF THE CELESTIAL PHYSICIANS THE ASWIN TWINS. WHEN VIÀPALA LOST HER LEG IN A BATTLE, THEY MADE AN ARTIFICIAL LEG WITH IRON AND FITTED IT TO HER. ÀVIN FITTED IRON LEGS TO VIÀPALA, DAUGHTER OF THE KING KHALA AND MADE HER FIT FOR THE BATTLE. THEY CONJOINED THE SEVERED BODY PARTS OF SYÀVASYA AND GAVE HIM LIFE. THEY GAVE EYES TO THE BLIND RAJASWA. THEY UNITED THE SEVERED HEAD OF DAKÀÀ PRAJÀPATI WITH GOAT’S HEAD AND GAVE HIS LIFE.

THE SEVERED HEAD OF DAKÀÀ PRAJÀPATI WAS REPLACED WITH GOAT’S HEAD AND HE WAS GIVEN LIFE. WE READ ABOUT THE FAMOUS SURGEONS TO THE GOD, THE ÀVINI KUMÀRA, DHANVANTARI RECITES AN INCIDENT WHICH OCCURRED IN ONE OF THE WARS OF THE GODS.
RUDRA CUT OFF THE HEAD OF DAKÀA. THEN THE GODS CALLED ON THE TWINS TO REPAIR THE DAMAGE AND THEY SUCCESSFULLY UNITED THE HEAD TO THE TRUNK AND RESTORED DAKÀA TO LIFE.

DURING THOSE DAYS THERE WERE THREE CATEGORIES OF VAIDYA (PHYSICIANS), These were: ÁALYA VAIDYA (SURGEONS), BHIÀAKS (PHYSICIAN), BHIÀAKS ATHATVANS (FAITH CURES). ÁALYA VAIDYAS WERE CONSIDERED SPECIALISTS IN THE SURGERY.

THE ANCIENT SAGES AND ÉYURVEDIC SURGEONS HAD VERY GOOD KNOWLEDGE OF THE ANATOMY OF BODY. VARIOUS BODY ORGANS ALSO FIND THEIR NAME IN VEDAS. THEIR STRUCTURAL ANATOMY HAS ALSO BEEN DESCRIBED IN VEDAS. THEY MENTIONED THE NUMBER OF BONES. ACCORDING TO THE VEDAS HUMAN BODY CONTAINS 360 BONES.

SURGERY MENTIONED IN THE VEDAS. ÁVANI KUMARÌS, THE TWINS BROTHERS WERE THE CELESTIAL
Physicians and surgeons were extolled in many hymns for their cures of disease and feats of surgery. It is believed that they were experts in the orthopaedics.

Medical science was one area where surprising advances had been made in ancient times in India. Specifically, these advances were in the areas of plastic surgery, extraction of cataracts, dental surgery, etc. These are not just tall claims. There is documentary evidence to prove the existence of these practices.

The practice of surgery has been recorded in India around 800 B.C. This need not come as a surprise because surgery (\textit{\d{e}s\textit{\i}\textit{s}t\textit{\i}r\textit{\a} \textit{karma}) is one of the eight branches of \textit{\d{e}yurveda} the ancient Indian system of medicine. The oldest treatise dealing with surgery is the \textit{s\d{u}r\d{u}t\d{a} s\text{a}{\ae}{\text{h}}\text{t}\d{\i}} (\textit{s\d{u}r\d{u}t\d{a}'s compendium). Su\d{u}r\d{u}t\d{a} who lived in K{	ext{"i}}\d{\i}r\d{\i}} was one
OF THE MANY INDIAN MEDICAL PRACTITIONERS WHO INCLUDED ETREYA AND CARAKA.

HYGIENE PLAYED A BASIC ROLE IN SURGICAL TECHNOLOGY NO LESS THAN IN MEDICAL ART. "THE HINDU SURGEONS WERE INSTRUCTED TO WASH THEIR HANDS AND NAILS VERY CAREFULLY, AND NEVER TO OPEN THEIR MOUTHS DURING AN OPERATION, LEST THE WOUND GETS INFECTED.

ON SURGERY AND TREATMENT OF DISEASES OF EYE, EAR, NOSE AND THROAT (¿AL¥A TANTRA AND ¿ILKyA TANTRA) THE FOLLOWING CLASSICAL WORKS WERE COMPOSED: AUPADHENAVA TANTRA, AURABHRA TANTRA, V¤DHA SUCRUTA TANTRA, PAUSKALAVATA TANTRA, VAITARA A TANTRA, BHOJA TANTRA, KARAVr¥A TANTRA, GOPURA RAKÀITA TANTRA, BHALUKI TANTRA, KAPILA TANTRA, VIDEHA TANTRA, NIMI TANTRA ETC. UNFORTUNATELY, NONE OF THESE TEXTS ARE AVAILABLE AT PRESENT. ONLY QUOTATIONS FROM THESE TEXTS ARE AVAILABLE IN SOME OF THE
Extant commentaries on Īyurvedic classics. All these works provide detailed-anatomical description of the human body.

Our knowledge of human anatomy from Īyurvedic texts, at present, is imperfect not because they were not available, but because we have lost many books providing anatomical descriptions of human body and some others which are available now do not provide the correct information, as, during the course of history, they were either redacted, re-composed and wrongfully interpolated.

**Surgery in Itihiṣēṣa**

The two great Itihiṣēsas are the Ṛiṃyā, a and the Mahābhārata. Īyurveda is a complete science and while keeping man healthy and cheerful, it tried to develop him fully. The system is as old as man, and it remains constantly with man from his birth to his
DEATH. VEDAS ARE FULL OF TEACHING OF ĖYURVEDA, ĖYURVEDA PROGRESSED DURING THE TIME OF RĪMĪYA, Ā AND MAHĪBHĪRATA. In those days, two branches of ĖYURVEDA that is medicine and surgery developed especially. Those whose limbs got injured in the war used to have them joined back through surgery and the warriors who become unconscious were restored to life through medicine. During LAKĀMAN - MEHGĀN;D BATTLE, LAKĀMAN BECAME UNCONSCIOUS DUE TO THE BLOWS OF MEHGĀN;D. He was revived by LANKA'S VAIĐYA SUSESAN THROUGH SANJÎVîNI BOOTI (LIFE RESTORATION HERB). No one should doubt suspect to the VAIĐYA of enemy side came to RAMA'S CAMP, as the humanitarian societies like RED CROSS serve nowadays without distinction so were there societies in ancient time as well. They used to attend to the wounded soldiers irrespective of their sides.
THE RÉMÉYAÚA


IN THE STORY OF RÌMÌYA,À, WHEN LAKÀMAN WAS INJURED IN THE BATTLE, VAIÐYA SUSAN SUSESAN EXAMINED HIM AND TREATED HIM WITH SOME HERBS HAVING MIRACULUS POWERS, THE MAIN FOUR WERE MÈTA SAµJEVANE.
VIÅALYAKARA, SAVAR, AKARA, AND SANDHANI.

MEDICAL PRACTICE OR MEDICAL PROFESSION ALREADY EXISTED DURING THE AGE OF RÌMÌYA, A. KING DÅRARATHA ADVISED QUEEN KAIKEYÌ TO TAKE SUGGESTION OF RÌJAYAIDYAS (ROYAL PHYSICIAN) FOR GETTING RELIEF. THE PLANT LIKE KUÅAJA, ARJUNA, KADAMBA, NIMBA, SAPTACCHADA, ÄOKA, ÑSANA, SAPTAPARÌ, KOVIARA HAVE BEEN DESCRIBED IN RÌMÌYA, A AT DIFFERENT PLACES.

TOXICOLOGY KNOWLEDGE HAD THEM. WHEN RÌMA AND LAKÀMA, A WERE INJURED DUE TO THE SARPA ASTRA OF INDRAJIT, HANUMAN SENT GARUÅA FOR THEIR TREATMENT.

IN THE ENUMERATION OF ‘MADHUåLA’ OF RÌVA, A, DIFFERENT TYPES OF ËSAVAS, WINES, MEAT AND THEIR PREPARATIONS ACCORDING TO THE PRINCIPLES LAID DOWN IN ËYURVEDA, SEVERAL VARIETIES OF SURì, ÁARKARÌSAVA, MÌDHVIKA, PUÅPÌSAVA, PHALÌSAVA ETC. AND THE VESSELS
MADE UP OF GOLD, SILVER, QUARTZ, ETC. ARE ALSO DESCRIBED. *Sivar, Yakara, etc., which impart original color. Ríva, A had died because of injury to his *Níbhímarma due to the arrow of Ráma.* This is the reference of 107 Marma which were known at that time.

*Kàcrasamudramanthan:- In 41st Adhyáya of Balk and, Rímâyà, A, there is a reference of churning of ocean for the Amàt. 14 gems come out of the ocean in which Dhanvantari holding Amàt Kalaḍà was also found to have included.

PRACTICE OF SURGERY

IN THE RíMíyà, A, while conveying her miseries during the Lankan life through a message to RíMí, Sita says that 'If RíMí does not come soon, Ríva, A will amputate my body
WITH SHARP INSTRUMENT'. THIS PROVES THAT SHARP WEAPONS AND PROCEDURE OF AMPUTATION HAD EXISTED IN THE TIME OF RîMiYA, A. THE PRESENCE OF WEAPON AND AMPUTATION GIVES EVIDENCE OF THE REMOVAL OR THE TREATMENT OF BODY PARTS BY USING SHARP INSTRUMENTS.

WHEN RîMA AND LAKÀMA, A WERE INJURED DUE TO THE SARPÌSTRA OF INDRAJIT, HANUMAN SENT GARU·A FOR THEIR TREATMENT.

SAGE GUATAMA CASTRATED THE TESTICLES OF INDRA.50 IN PLACE OF THAT AÂVÌNS TRANSPLANTED THE TESTICLES OF A GOAT. HE WAS THEREFORE CALLED MEÀAVÌNa, A.

IN THE DESCRIPTION OF AUÀADHIPARVATA KAµCANAPARVATA THE PLANT SANDHîNAKARA, Ç
JOINS THE FRACTURED BONES. WHEN LAKÀMA, A
BECAME UNCONSCIOUS IN THE WAR BY AN ARROW,
RÌMA DECLARED HIM AS DEAD, BUT THE SURGEON
SUSHEN EXPLAINED TO HIM THAT THE SIGNS AND
SYMPTOMS OF A LIVE PERSON ARE THAT HIS FACE
HAS NOT CHANGED, HIS FACE HAS NOT BLACKENED,
HIS FACE HAS NOT BECOME CHARMS-LESS BUT
REMAINS WITH FULL OF LIGHT AND HIS PALMS ARE
LIKE LOTUS.

THE INFORMATION GIVEN BY RÌMIYÀ, A ABOUT
THE TRANSPLANTATION OF GOAT’S TESTICLE FOR
THE RESTORATION OF MALE VIRILITY TO INDRA51 WHO
LOST HIS TESTICLE DUE TO A CURSE BY GOUTAMA,52 IS
ALMOST LIKE REMINDING THE PRESENT MODERN
MEDICAL SYSTEM, WHERE, ANIMAL PARTS ARE
TRANSPLANTED. IN ONE PLACE IN THE RÌMIYÀ, A, IT
HAS BEEN SAID,

YÌJAMÌNE SWÅKE NETRE UDGRITYÀ VÌMINA DADAU
THIS MEANS THAT WHEN NEED AROSE, THE EYE OF ONE MAN WOULD BE TAKEN OUT AND TRANSPLANTED IN ANOTHER HUMAN BEING.

**MAHÉBHÉRATA**

IN MAHÉBHÉRATA, THERE ARE REFERENCES OF ÉTREYA (KṚŚṇA, TREYA), DIVODASA AND NAGNAYIT, WHICH PROVES THAT THESE NAMES WERE QUITE FAMILIAR TO THE SOCIETY. IT IS DIFFICULT TO DECIDE THE EXACT DATE OF THE MAHÉBHÉRATA AND IT IS STATED AS BETWEEN 4TH CENTURY B.C. AND 4TH CENTURY A.D. IN THE MAHABHARATA MANY POINTS ARE OBSERVED WHICH PUT IT CLOSER TO THE SÚRUTA SÁHITI.

**PRACTICE OF SURGERY**

VARIOUS TYPES OF MEDICAL AND SURGICAL TREATMENTS CAN BE SEEN IN MAHÉBHÉRATA. 53 WHEN BHARĀMA WAS WOUNDED AND WAS LYING ON THE BED OF ARROWS DURING KURUKŠETRA WAR, 54

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DURYODHANA CALLED THE EXPERIENCED AND SKILLED SURGEONS TO TREAT BHĕ́MA, BUT HEROIC BHĕ́MA REFUSED TO TAKE ANY TREATMENT, AS HE WANTED TO DIE ON THE BED OF ARROWS AS A TRUE KĀATRIYĀ. THIS SUGGESTS THAT MILITARY SURGEONS AND PRACTICE OF SURGERY EXISTED IN THOSE DAYS ALSO.

PLASTIC SURGERY HAD ORIGINATED IN MAHāBHāRATA TIMES AND IS NOT A NEW THING FROM THE 20TH CENTURY. ARJUNA REALLY DID DIE TWICE AND WAS REVIVED WITH A PLASTIC SURGERY. AS ALSO THE REAL REASON BEHIND THE MAHĀBHĀRATA SHOW DOWN WAS NOT THAT Pā́VAS WERE FIGHTING FOR THEIR RIGHT TO RULE BUT BECAUSE KAUARĀVAS HAD BUSINESS INTEREST IN KURUKŚETRA AND WANTED TO SET UP MARIJUANA FACTORIES THERE, WHICH Pā́VAS OBJECTED TO.

FROM THE DIALOGUE BETWEEN YUDHIŚṬIRA AND NĪRADA IN SABHīPARĀVA OF MAHāBHāRATA, A
DESCRIPTION OF THE EIGHT PARTS OF SURGICAL TREATMENT IS FOUND.

PURÈNÈS AND SURGERY

OUR PURÌNÌS GIVE US A LOT OF INFORMATION ABOUT SURGERY WHICH IS FOUND IN ITIHÌSÌS. ACCORDING TO THE ÁIVA PURÌNÌ, THE ÁÌVINIKUMARS TRANSPLANTED A NEW HEAD WHEN LORD ÁIVA SEVERED THE HEAD OF DAKÀÀ. SIMILARLY, WHEN GANESH'S HEAD WAS TRANSPLANTED.

SURGERY REFERENCES IN VENÌSAÊHÈRA

VE, ËSAÊHÌRA OF BHÀTÌANìRÌYA,Ì IS ESSENTIALLY A HEROIC PLAY. IT BELONGS TO THE CLASS OF WRITINGS KNOWN AS NÌÌTAKAS. THE PLOT IS MAINLY TAKEN FROM THE MAHÌBHÌRATA, AND COVERS THE PERIOD WHICH ELAPSES BETWEEN THE RETURN OF THE PÌÌAVAS TO INDRAPRASTHA AFTER THEIR 13 YEARS EXILE, AND YUDHIÀÌTHIRA'S ACCESSION TO THE THRONE AFTER THE GREAT WAR. SO MANY SURGICAL REFERENCES OCCUR IN THIS DRAMA THAN IN ANY OTHER SANSKRIT DRAMAS.
IN ACT-IV DURYODHANA IS MOURNING HIS BROTHER DUSSAISANA'S LOSS, AT THE TIME THE ENTRANCE OF SUNDARAKA WITH HIS BODY DECKED WITH BANDAGES TIED OVER THE WOUNDS OF ARROWS,\textsuperscript{56} THIS IS THE PROOF OF SURGERY TREATMENT OCCURS AT THAT TIME.

IN ACT-V, DHATARĀTRA AND GIRDHİRĘ ENDEAVOUR TO PERSUADE DURYODHANA TO SUE FOR PEACE BUT HE REFUSES TO DO SO. IN THE COURSE OF THEIR CONVERSATION A TUMULT IS HEARD FOLLOWED BY THE ANNOUNCEMENT OF KARĀ'S DEATH. EMBRACING DURYODHANA, DHATARĀTRA ASKS HIM:—

'MY DEAR SON, IS THE PAIN BEARABLE?' AS YOU—WITH YOUR ARMOUR REMOVED AFTER THE POINTS OF ARROWS HAD BEEN EXTRACTED BY MEANS OF PINCERS AND THE BANDAGES PUT ON OVER THE WOUNDS, AND GENTLY RECLINED ON KARĀ—SHOULD HAVE BEEN LOOKING, WITH GRACE, FROM A DISTANCE, AT THE KINGS FIRST CONQUERED AND THEN CONSOLED.\textsuperscript{57} THIS SITUATION PROVES THAT AN
ELABORATE SURGICAL SYSTEM OCCURS AT THAT TIME.

**SURGERY IN BHOJA PRABHANDHA**

THERE IS THE DESCRIPTION OF KING BHOJA'S SUFFERING FROM A SERIOUS TYPE OF HEADACHE AND HOW HE WAS CURED THROUGH SURGERY. HE WAS ANESTHETIZED BY SAMMOHANA CURA, HIS CRANIAL BONE WAS OPENED, THE FOREIGN BODY WAS REMOVED, THE BONE WAS REPLACED, STITCHED AND HE WAS MADE TO REGAIN HIS CONSCIOUSNESS BY THE USE OF ANOTHER POWDER CALLED SANJIVANI CURA.

**BUDDHISM AND SURGERY**

GAUTAMA BUDDHA, THE HISTORICAL BUDDHA, STATED THE DOCTRINE OF BUDDHISM MORE THAN 2500 YEARS AGO. SINCE THEN, IT HAS BECOME THE SALVATION FOR PEOPLE SEEKING LIBERATION FROM SICKNESS AND DEATH. IT RESPECTS EQUALITY
BETWEEN HUMAN BEINGS AND ANIMALS AND TRIES TO SOLVE EVERYDAY LIFE DIFFICULTIES. WITH A RELIGION AND SYSTEM THAT PROTECTS MILLIONS OF PEOPLE FROM SUFFERING. THE FAME OF BUDDHA SPREAD WIDELY AS HE CURED THE DISEASE OF THE MIND. HE ALSO GAVE HIS FIRST DISCOURSE ON MEDICINE IN HIS SPIRITUAL COMMUNITY, WHERE, BECAUSE OF MONASTIC DISCIPLINE, THE MONKS WHO SUFFERED FROM DIARRHOEA AND POOR HEALTH WERE TREATED, BY BUDDHA, WHERE SOME MEDICATIONS WERE NOT PERMITTED BY MONASTERY CODES OF BEHAVIOUR.

THERE ARE MANY STORIES RECORDED IN KAGYUR AND TENGYUR AND JITAKA TALES' ABOUT THE LIFE OF BUDDHA, AND MEDICINE. ACCORDING TO THE HISTORY OF TIBETAN MEDICINE HISTORY, BUDDHA HELD A DISCOURSE ON 'FOUR TANTRAS' WITH SPECIAL FOUR GROUPS OF PHYSICIANS IN THE MEDICINE FOREST IN VARANASI EMPEROR ASOKA THE GREAT (3RD CENTURY BC) WHO BECAME
Buddhist after having won the Kalinga War. He saw suffering and lives lost and then took refuge in the three jewels. He built many monasteries, temples and public hospitals, established veterinary surgeries and planted medicinal herbs and trees. He propagated Buddhism throughout his entire kingdom.

The life story of Buddha mentions a lot about the medicine as described in the Vinaya Sûtra. Buddha's love and compassion towards the patients and his teachings influenced the ancient medical practice during the period of Buddhism development. Medicinal relief and nursing were thus strongly encouraged. However, the use of knife was discouraged and surgery was given up. Buddha put an end to animal sacrifice for ethical reasons and insured respect to the life of all beings.
FOLLOWERS BUILT MANY HEALTH CENTRES FOR MEN AND ANIMALS.

AT THE TIME OF BUDDHA AGIDATANTRA AND ÁALYA TANTRA (SALLA KATTHAKAM) PERHAPS GOT AN UPPER HAND. BUDDHA HAS BEEN DEPICTED IN THE TEXT AS CALLING HIMSELF THE INCOMPARABLE PHYSICIAN, AND SURGEON AS WELL (ANNUTTARO BHIÀAKO SALLAKATTHO). IN THE EARLY BUDDHIST PERIOD MEDICAL TREATMENT AND SURGERY DEVELOPED TO A GREATER EXTENT. 58

KUMÈRA JÌVAKA

KUMÌRA JìVAKA, SON OF KING BIMBISíRA OF MAGHADA KINGDOM, INDIA, AND A COURTESAN, WAS A PHYSICIAN, SURGEON AND PEDIATRICIAN CONTEMPORARY TO BUDDHA. HE STUDIED MEDICINE IN TAXILA AND PERFORMED CRANIAL AND OTHER MAJOR OPERATIONS MENTIONED IN THE HISTORY OF INDIAN MEDICINE.

HE HAD LEARNED THIS ART FOR SEVEN YEARS FROM MASTER ATREYA WHO WAS THE
CROWN PHYSICIAN OF THE ÉYURVEDIC PHYSICIANS AT THAT TIME. THE YOUNG KUMíRA J¢VAKA WAS ALSO CROWNED THREE TIMES KING OF THE PHYSICIANS BECAUSE OF HIS EXTRAORDINARY CURES PERFORMED ON HIS FATHER, QUEEN STEP MOTHER AND OTHERS. HE BECAME GREATLY AMBITIOUS ABOUT GAINING MORE KNOWLEDGE OF MEDICINE AND SURGERY.

DEVADATTA BECAME THE MASTER OF AJ¡TA¿ATRU, THE MAGADHA KING WHO DESTROYED THE RELIGIOUS CENTERS WHILE DEVADATTA WAGED WAR AGAINST BUDDHA. THE SOLDIERS CATAPULTED A ROCK WHICH HURT BUDDHA'S BIG TOE. IT BLED FOR A LONG TIME, J¢VAKA TREATED IT BUT FAILED. FINALLY J¢VAKA TOLD BUDDHA THAT IT COULD BE CURED BY THE MILK OF A FIRST BORN MALE CHILD'S MOTHER. SO HE SUCCEEDED TO STOP THE BLEEDING.

NËGERJUNA

N¡G¡RJUNA ¡CARYA WAS BORN AROUND THE
CENTURY. HE WAS NOT ONLY A MASTER AND
THE FOUNDER OF THE MAHYANA BUDDHISM BY
BRINGING THE PHILOSOPHY OF MIDDHYAMIKA, BUT
ALSO A MASTER IN MEDICAL SCIENCE AND THE
FIRST ONE TO DISCOVER ALCHEMY PRACTICE IN
INDIA. HE WAS A GREAT SAINT, PHILOSOPHER,
PHYSICIAN, ALCHEMIST AND THE LEADER OF
ALL BUDDHIST ORDERS OF THAT TIME. NIGIRJUNA
ACHIEVED RASYANASIDDHI WHICH MEANS THAT
HE BLESSED WITH LONG LIFE. HIS FACE BECAME
RADIANT AND HIS COMPLEXION SHOW LIKE THAT
OF A GEM. AS THE RESULT OF HIS MEDITATION IN THE
SRI PARVATA, HE ATTAINED THE FIRST BHUMI.

IN THE LATER BUDDHIST PERIOD, THE DOCTRINE
OF AHIMSA (NON-VIOLENCE) AND COMPASSION
TOWARDS ALL FELLOW BEINGS BECAME VERY
POPULAR AND AS A RESULT OF IT, SURGICAL
OPERATIONS WERE LOOKED UPON AS CAUSING
INJURY (HIMSA) AND PAIN TO PATIENTS. PROBABLY
FOR THIS REASON SURGERY WAS DISCOURAGED IN
THE LATER SOCIETY. THUS, THE STUDY AND PRACTISE OF SURGERY BEING UTTERLY NEGLECTED, AN EXTENSIVE STUDY OF THE EIGHT BRANCHES OF ĒYURVEDA SUFFERED A LOT AND ONLY THE BRANCH OF KīYACIKITSĀ AND RASAYANA SURVIVED.⁵⁹

SURGICAL REFERENCES IN JAINISM

SIMILAR TO BUDDHISTS, JAINS ALSO HAD A FAIRLY GOOD KNOWLEDGE OF SURGERY. JAIN SEERS COMPOSED MEDICAL TEXTS ON EAR, NOSE AND THROAT (SIĻIKA YĀ AND PUJYAPADA), SURGERY (PATRA KESARI).⁶⁰

THE AACARANGA SUTRA DESCRIBES SIXTEEN MAJOR DISEASES; AND BY THE 10TH CENTURY, SIXTY FOUR DISEASES HAD BEEN IDENTIFIED, AND 63 METHODS OF PHYSICAL, MEDICAL AND SURGICAL TREATMENT WERE EMPLOYED. JAINS ARE VERY MUCH PARTICULAR IN OBSERVING THE RULES OF CONDUCT ESPECIALLY NON VIOLENCE. SO THEY DID NOT ENTERTAIN THE PRACTICE OF SURGERY. PHYSICIANS
USED TO CARRY KITS CONTAINING THE REQUIRED DRUGS AS WELL AS INSTRUMENTS FOR ATTENDING THE MEDICAL AND SURGICAL CASES RESPECTIVELY. ĀṉāṉaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆaṆa.rar
THOSE DAYS. Error of treatment causing death was severely punished. A surgeon had to lose a limb, for causing a patient to lose it by his mistaken operation.

AÂÜEDHYÊÝI OF PÈÜINI

AÂÜEDHYÊÝI OF PÈÜINI is an excellent Sanskrit work belonging to 7th century BC. Sanskrit was the spoken language of the people in those days. PÈÜINI makes references to ČÈRYAS of ËYURVEDA named BHARADWjà, ÈTREYA etc. who were mentioned in AÇÈVIDIGjà, while the disciple of the famous surgeon ÈTREYA, AGNİVÈÅ, PÅRÌÇARA, JÌTUÇA, À are mentioned in GARGÌDÌ GAÅ, A. SUÇRUTA and his disciples were also mentioned in AÂÜEDHYÊÝIÇÈ. PÈÜINI refers to certain terms which provide information about the state of medicine at that time.

According to him, CARAKAS, a class of disciples of would go from place to place
PREACHING AND HEALING. NAMES SUCH AS JÌTÌKARÌA, PARÌZARÌA AND AGNİVEÌA WHICH ARE MENTIONED IN CARAKA ARE MENTIONED HERE AS WELL.

MANUSMRITI

ELABORATE CODES OF HYGIENE CAN BE FOUND IN SEVERAL INDIAN TEXTS SUCH AS THE MANUSMRITI. THIS GOLDEN ERA OF INDIAN SURGERY BEGAN ITS GRADUAL DECLINE FROM THE TIME OF BUDDHA (562-472 B.C.). BUDDHIST SCRIPTURE MAHÌVAGGA JÌTAKA ENFORCED STRICT PROHIBITION ON SURGEONS AND MANUSMRITI PRESCRIBED SPECIAL RITUALS FOR PURIFICATION OF SURGEONS.

IN THE MANUSAÆHITÌ, WE HAVE UN MISTAKABLE TESTIMONY OF THE DECLINE OF SURGERY AS THE AUTHOR PROHIBITS THE EATING OF COOKED RICE FROM THE HANDS OF A SURGEON.

CONTEMPORARY TEACHING THAT TIME WAS BASICALLY MEDICINAL I.E. ÌYURVEDÌ, WHICH
FORBIDE SURGERY, AS CONTACT WITH BLOOD AND PUS WAS CONSIDERED POLLUTING. HENCE, DURING THIS PERIOD, THESE GREAT SURGICAL SKILLS WERE DELEGATED TO LOWER CASTES LIKE 'KOOMARS' OR POTTERS WHO WERE KNOWN FOR THEIR MANUAL DEXTERITY PURA.

IN OLDEN DAYS, REMOVAL OF THE NOSE WAS ALSO ONE OF THE MOST COMMON FORM OF PUNISHMENT. MANU, THE FAMOUS LAWGIVER, MENTIONS THE EARS AND THE NOSE AMONG THE TEN PARTS OF THE BODY ON WHICH PUNISHMENTS ARE TO BE EXECUTED.

THUS IT BECAME A SOCIAL NECESSITY TO FIND A SUBSTITUTE FOR THE LOST NOSE. THE DEVELOPMENT OF PLASTIC SURGERY IS CLOSELY CONNECTED WITH THE OPERATIVE TECHNIQUES USED IN THE FIELD KNOWN AS RHINOPLASTY.

REFERENCES OF SURGERY IN RĒJATARANGINI
THE POPULARITY AND PRACTICES OF ĀYURVEDIC SYSTEM OF HEALTHCARE WAS ESTABLISHED IN ANCIENT KİİMİR. ĀYURVEDIC LITERATURE PROVIDES REFERENCES TO HOLDING OF CONFERENCES OF LEARNED ĀYURVEDIC SAGES TO DECIDE CONTROVERSIAL ĀYURVEDIC CONCEPTS IN KİİMİR. ĀYURVEDIC TREATMENTS WERE PRACTICED IN ANCIENT KİİMİR TO PROMOTE AND RESTORE HEALTH AND IT IS WELL DESCRIBED IN SOME TARANGS OF RİJATARANGI, I. WRITTEN IN THE MIDDLE OF TWELFTH CENTURY IN THE AGE WHEN THE CRUSADERS OF EUROPE WERE FIGHTING IN WEST ASIA, RİJATARANGI, I IS A BLEND OF AUTHENTIC CHRONICLE AND IMAGINATIVE POETRY OF KALHA, A. IT WAS A PERIOD OF ENLIGHTMENT FOR INDIA WHERE AS THE WEST WAS IN THE DARKNESS.
THERE IS INTRIGUES IN THE PALACE, MURDER AND TREASON, CIVIL WAR, TYRANNY AND ADULTERY PREVAILED. DESCRIPTION OF K\textit{y}acikitsa, Áalya cikitsa, rasa īstra and pancakarma etc. PRACTICES ARE FOUND IN VERSES OF R\textit{j}atarangī, I. R\textit{j}atarangī, I, THE BOOK WRITTEN REGARDING SOCIO POLITICAL SCENARIO OF ANCIENT K\textit{i}śmir PUTS LIGHT ON Ėyurvedic PRACTICES IN ANCIENT K\textit{i}śmir. THERE IS NO DOUBT THAT Ėyurveda WAS THE ONLY HEALTHCARE SYSTEM PRACTICED IN ANCIENT K\textit{i}śmir. THE EIGHTH TARANG OF R\textit{j}atarangī, I DESCRIBES SURGICAL PRACTICES AND CARE WHILE DESCRIBING THE SURGICAL DRESSINGS OF WAR-INJURED SOLDIERS. IN R\textit{j}atarangī, I, THERE ARE REFERENCES WHICH SHOW THAT PLASTIC SURGERY AND REPAIR, SURGICAL PRACTICES ETC. WERE
PRACTICED BY VAIDYŚ OF ANCIENT KÌŒMIR. IN THE KINGDOM OF LALITÐITYA, VAIDYŚ USED TO TREAT SOLDIERS WITH MUTILATED NOSES, EARS AND THROATS.

IN CONCLUSION HERE DISCUSS THE SURGERY REFERENCES OF THE TWO FAMOUS WORKS IN AYURVEDA NAMELY THE CARAKA SAMHITA AND THE AÀŤìNGAHìDAYA. THESE TWO WORKS ARE THE MOST POPULAR WORK TILL TODAY THROUGHOUT THE COUNTRY.

SURGERY REFERENCE IN CARAKA SAMHITA

CARAKA, THE MASTER PHYSICIAN, IS BELIEVED TO HAVE LIVED IN THE FIRST CENTURY A.D. THE SAMHITA COMPOSED BY HIM FORMS THE BEDROCK OF
AYURVEDIC PRACTICE TODAY. HIS CONTRIBUTION TO INDIA’S CULTURAL INHERITANCE WAS PROFOUND. CARAKA SAMHITA WAS, IN FACT, A REVISION OF AN OLDER TEXT AGNIVÉÇA TAMTRA, WHICH WAS WRITTEN SEVERAL CENTURIES BEFORE CARAKA’S TIME.

CARAKA RECOGNISED TWO TYPES OF SORES. THEY WERE EITHER THE MANIFESTATION OF DISTURBED DOÀAS WHICH FIND AN OUTLET ON THE SURFACE, OR WERE CAUSED BY EXTERNAL INJURIES SUCH AS THOSE BY A WEAPON. IF AN EXTERNAL TYPE FAILED TO RESPOND TO CONVENTIONAL TREATMENT, ONE HAD TO THINK OF AN UNDERLYING DISTURBANCE OF DOÀAS AS THE CAUSE OF THE NON-HEALING SORE. THE ROLE OF FOREIGN BODIES, FAULTY BANDAGING, SYSTEMATIC ILLNESS
LOCATION IN INTERTRIGINOUS AREAS AND PRESENCE OF MAGGOTS IN DELAYING THE HEALING OF SORES WAS ALSO CLEARLY RECOGNISED.

THE PRINCIPLES OF TREATMENT CONSISTED OF EVACUATIVE MEASURES TO BEGIN WITH, FOLLOWED BY SURGERY AND ENEMAS. IN FACT, NO LESS THAN 36 SPECIFIC MEASURES FOR GENERAL AND LOCAL TREATMENT WERE RECOMMENDED, WHICH INCLUDED A NUMBER OF SURGICAL PROCEDURES AND THE APPLICATION OF A VARIETY OF MEDICINAL PASTES TO PROMOTE WOUND HEALING. SEPARATE FORMULATIONS WERE RECOMMENDED AS PASTES OF SORES WITH DEPRESSED OR ELEVATED FLOOR IN ORDER TO INCREASE OR DECREASE THE GRANULATION TISSUE.

SURGERY REFERENCE IN AÅÜÈ×GAHÌDAYAM
Aṅgahodaya of Viṣṇubhata is the most popular work till today through out India. Later several compilations appeared and became popular in certain parts of the country among practitioners. As well as known, Caraka Samhita gives stress on general medicine while Sūrata Samhita gives importance to surgical aspects. In contrast Aṅgahodaya, as the name suggests, deals with all the eight branches to the required extent for a successful physician and surgeon. Aṅga Samgraha, written by an Īyurveda acharya named Viṣṇubhata is also the compilation of the works by both Charaka Samhita and Sūrata Samhita. Aṅga Hodaya deals surgery in many places. The procedure
OF EXTRACTION OF FOREIGN BODIES DESCRIBES IN \( \text{\`ALY\'{i}HARA \text{\`AVIDHI} \ \text{CHAPTER}.} \) THE \( \text{\`ALY\'{i}HARA \text{\`AVIDHI} \ \text{CHAPTER} \) DISCUSS THE ROUTE, DETECTION, FORM AND EXTRACTION OF FOREIGN BODIES.\(^{65}\)

\( \text{\`AN{i}NG\text{H\text{\"O}D\text{\"A}YA \ \text{SAYS} THE \ \text{APPLICATION OF APPLIANCES AND INSTRUMENTS ALSO. YANTRAS ARE THE DEVICES, WHICH ARE EXPEDIENT IN THE EXTRACTION OF DIFFERENT TYPES OF FOREIGN BODIES (\text{\`ALYA}) PRODUCING PAIN IN DIFFERENT ORGANS OF THE BODY. THE SVASTIKA, SAMDAMSA, MUCU, TALATANTRA, NI\text{DI\text{\"Y}ANTRA ETC. DESCRIBED BY \text{\`AN{i}NG\text{H\text{\"O}D\text{\"A}YA. THE \text{\`ASTRAS ARE TWENTY SIX IN NUMBER.}}}} \)\)
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