MATERIAL AND METHODS
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The study was conducted on the patients admitted in M.L.B. Medical College hospital, Jhansi from March 1988 to Jan. 1989 with symptoms arising due to benign enlargement of prostate and undergoing prostatectomy operation.

After doing per rectal examination, diagnosis was made. The primary investigations such as -

Routine examination of blood, urine, blood urea, Blood sugar, Bleeding time, coagulation time and ECG were done and noted.

The sponges and gauzes were cut of equal sizes and weighed to make procedure simple and were sterilized after marking.

Height of the patient was taken in centimeters and weight taken in kilograms before transferring the patients to the operation table. Obesity was assessed by - Standard height weight chart.
Bleeding time was measured in minutes by
the ear lobule skin prick method using a blotting paper
and clotting time measured in minutes by the glass
capillary method.

The patients undergoing operation were
divided in two groups.

1) Group A

2) Group B

Pre operative blood was taken out to deter-
mine haemoglobin concentration by colorimeter.

All operations were done under spinal
anaesthesia. And in every case Freyer's method of
prostectomy was done.

Group A - In patients of group A the usual methods
were tried and patients were divided into 3 sets,
depending upon the method for haemostasis.

1) 1st set ligation method

2) 2nd set - Cautery

3) 3rd set - Packing
After incising skin and opening the bladder, prostate gland was taken out.

In 1st set after taking out the gland, blood was soaked by standard sponges. The weight of sponges to be used for soaking was already noted. Then the bleeding surface was ligated and watched for any bleeding. If bleeding was controlled then catheter was passed and the Foley's balloon was inflated. Any blood in the bladder was sucked. The bladder was then closed after inserting Malecot catheter for doing continous irrigation. The sponges were weighed and the blood in suction was measured.

In second set, bladder was opened by the same method and cautery was used for securing haemostasis after removing prostate gland. The sponges were measured pre operatively and post operatively. The bladder was closed after inserting the Foley's catheter and Malecot catheter for continous irrigation, and the blood loss was measured by weighing
PHOTOGRAPH SHOWING PRE OPERATIVE SPONGES (UNSOAKED) IN WEIGHING MACHINE.
PHOTOGAPh SHOWING PROSTATECTOMY OPERATION.
PHOTOGRAPH SHOWING SURGICEL AND FOLEY'S CATHETER.
PHOTOGRAPH SHOWING SURGICEL APPLIED ALL AROUND THE INFLATED FOLEY'S BULB.
PHOTOGRAPH SHOWING POST OPERATIVE BLOOD SOAKED SPONGES WITH WEIGHING MACHINE.
PHOTOGRAPH SHOWING ( L TO R )
- RESULTANT SOLUTION
- POST OPERATIVE BLOOD SAMPLE
- PRE OPERATIVE BLOOD SAMPLE
- CYANMETHHAEOMOGLOBIN STANDARD
- COLORIMETER
- DRABKIN'S REAGENT
- BURETTE
socked sponges and measuring the blood in suction bottle.

In third set, long gauze pack was used as a pack for securing haemostasis after removing prostate gland instead of cautery and ligation. Weight of gauze was noted before packing and after it is taken out blood in suction if any was noted. Sponges used were weighed and the bladder closed after inserting Foley's catheter and malecot catheter. Continuous irrigation was then maintained.

Group B - In group B the pre operative haemoglobin was determined by colorimeter method.

Again the bladder was opened in similar manner prostate gland was enucleated. Sponges weighed earlier were used for soaking the blood. Suction was also used Foley's catheter was passed. Then the bulb was inflated with 30 to 40 cc saline. Surgicel was applied around the inflated bulb and catheter was given traction to place the bulb in the prostate fossa.
After waiting for few minutes, so that surgical gets stuck to prostatic cavity, malecot catheter was inserted. Any blood in the cavity was sucked or removed by soaking with sponges. Then the bladder was closed, and irrigation with normal saline was maintained.

After completing the operation in both the groups again 2 ml blood was taken out by sterilized syringe to determine post operative haemoglobin by colorimeter.

The sponges were weighed and the blood in suction bottle was measured.

**SUBJECTIVE METHOD**

For subjective estimation bleeding per operatively and post operatively in collecting bag was noted.

**GRAVIMETRIC METHOD**

Blood loss was calculated by weighing soaked sponges and measuring blood in suction apparatus.

Difference of dry and soaked sponges and adding the
volume in suction gives the total blood loss. The blood loss was calculated by dividing the total weight of blood by the average specific gravity of blood.

**COLORIMETRIC METHOD**

To determine the blood loss by colorimetric method, a large bucket was taken to which 10 litres of water was added. In that water, all the sponges and towels were washed thoroughly.

Cyanamethhaemoglobin method for estimation of haemoglobin was used. 1.5 ml of filtered resultant solution was added to 6 ml of Drakin's solution in a glass test tube. The optical density of this was taken by photo electric colorimeter and thus the haemoglobin concentration of resultant solution was calculated.

\[
\text{Hb concentration of resultant washing solution} = \frac{\text{O.D. of R.S.} \times \text{Hb Conc. of Standard solution (gm%)}}{4} \times \frac{\text{O.D. of standard solution}}{} 
\]

Pre operative and post operative haemoglobin concentration of the patient was also determined by
Cyanmethhaemoglobin method .02 ml of patients
blood was taken in pipette by finger prick method
and mixed to 5 ml of urakin's solution in a standard
glass test tube. Optical density was determined by
photo electric colorimeter and thus Haemoglobin
concentration of patients blood pre operatively and
post operatively was determined by -

\[
\begin{align*}
\text{Hb Concentration of patient blood} &= \frac{\text{O.D. of Sample X Hb Conc. of standard solution}}{\text{O.D. of standard solution.}} \\
\text{Average Hb Conc. of patient blood} &= \frac{(H_{\text{pre}} + H_{\text{post}})}{2} \text{ gm%}
\end{align*}
\]

when, \(H_{\text{pre}}\) = pre operative Hb concentration

\(H_{\text{post}}\) = post operative Hb concentration

Final Vol. of resultant solution = Initial volume of + Blood lost added to solution

Blood lost = \(\frac{\text{Hb Conc. of R.S. X (Vol. of washing water + Vol. of blood lost added to solution}}}{\text{Average Hb concentration of patient's blood (gm%)}}\)
Then post operative normal saline irri-
gation was maintained in all cases and the fluid
was collected in collecting bag.

*After the total volume becomes 10 litres,*

1.5 ml of the resultant solution is taken and the
haemoglobin concentration is determined by the
same method.

*Again 2 ml of the patient's blood is taken
out and the haemoglobin concentration is determined.*

*And so the blood lost in 48 hours is
determined by the same method.*