INTRODUCTION
One of the most classical definitions is provided by Roll: "death by drowning is the result of a hampering of the respiration by obstruction of mouth and nose by a fluid medium (usually water)". [10]

A recent global burden of disease (GBD) study reveals global mortality from drowning to be 7% of all injury related deaths (WHO, 2010). [1] Drowning is among the top 10 leading causes of death for children and young adults worldwide, with the drowning death rates at least three times higher in the developing countries than the developed countries. [3]

India is a large country having plenty of water bodies i.e. Rivers, ponds, wells and an extensive seacoast. In such a conducive environment, it is but natural that death due to drowning is a frequent event, where medicolegal expertise is called upon for investigations.

Accidental drowning occurs often in India, nearly 40,000 Indians die annually from drowning. It occurs occasionally among swimmers due to their rashness in swimming, but it occurs mostly in non-swimmers who venture to go beyond their depth in the sea, rivers, canals and lakes. Many lives are lost during floods, which are so frequent. Drowning also occurs among persons at bathing places while bathing in deep water. Females may fall accidentally into a well while drawing water from it. Children may also accidentally fall into ponds or lakes while playing near their banks. They may even fall accidentally into domestic vessels of water, such as water tanks, bathtubs and buckets. [9] Accidental drowning in shallow water is very rare, except when the individual happens to be intoxicated, insane or epileptic. [8] The autopsy diagnosis of death by drowning can be one of the most difficult problems in forensic pathology because in our Indian setup the time required to complete the inquest formalities and transport the body to the mortuary is often for decomposition to set in, which masks most of the postmortem findings required to estimate the cause of death. Also, most of the bodies recovered from water are in various stages of decomposition. [4]

It has been described in the literature that diagnosis of drowning is one of the most difficult in the field of forensic medicine. Also, the external examination and the autopsy findings are not specific in most of the cases and investigations of laboratory are debatable. [5] Hence, the present study aimed to analyze the various aspects of drowning deaths whose medicolegal autopsy were conducted in the mortuary of Pt. B. D. Sharma PGIMS, Rohtak.

OBSERVATION AND RESULTS
Table 1: Age and Gender distribution of drowning cases

| Age (in years) | Male | Female | Total |
|---------------|------|--------|-------|
| 0-10          | 2    | 1.43   | 5     |
| 11-20         | 14   | 10.07  | 57    |
| 21-30         | 42   | 30.21  | 31.91 |
| 31-40         | 39   | 28.05  | 14.89 |
| 41-50         | 33   | 23.74  | 14.89 |
| 51-60         | 5    | 3.59   | 6.27  |
| 61-70         | 3    | 2.15   | 6.38  |
| 71-80         | 1    | 0.71   | 2.12  |
| Total         | 139  | 100 (74.73) | 186 (100) |

Table no 1. shows, the incidence of drowning deaths were found in all age groups however, commonly seen in age groups of 21-30 years (30.64%) followed by 31-40 years (24.73%). Among the total cases, 74.73% victims were male and 25.27% were female. The male: female ratio was 2.95:1. Thus it is obvious that the majority of cases reported for postmortem examination were males.

Table: 2 Manner of death

| Manner | Suicidal | Accidental | Homicidal | Total |
|--------|----------|------------|-----------|-------|
|        | 104 (55.91%) | 00         | 86 (100%) |

Table no 2. Shows, out of the total of 186 cases of drowning, 104 cases (55.91%) were accidental and 82 cases (44.08%) were suicidal. Significantly we did not find any case of homicidal drowning.

Table: 3: Shows the external and internal features in autopsy among the subjects

| S No. | Features | Number | % |
|-------|----------|--------|---|
| 1     | Cutis Anserina | 15 | 8.06 |

Regardless of the methods of death, the dead bodies recovered from different sources of submersion irrespective of age or sex and either with fresh or decomposed bodies were included in this study.

Detailed history related to place of the incident, type of water body and other relevant findings were obtained from the previous records. During post mortem examination, condition of clothing, skin changes, examination of natural orifices, injuries on body and cadaveric spasm were examined. All the cavities were examined. In all cases, diatoms were examined with standard protocol in tissue and samples of water collected from place of death.

KEYWORDS
Age-groups, Manner, Autopsy, Retrieval.
Prabir et al. showed maximum accidental in nature. The probable explanation to accidental and (27.14%) were suicidal and in (35.72%) cases police corresponded with Mukherjee AA et al, wherein (37.14 %) were comprised of asphyxia and filling of the airways with fluid along with effects at hydrostatic and osmotic level.

Table no. 3 shows soddening (50.00%) followed by Animal bites and Decomposition (54.83) as predominant external feature of autopsy and presence of water in stomach (56.98%) followed by presence of heavy, voluminous, edematous and congested lungs with c/s showing copious frothy fluid (52.15) as most predominant internal feature of autopsy.

Table 4: Distribution of drowning deaths as per place of retrieval (source of drowning).

| Place of retrieval | Male % | Female % | Total % |
|-------------------|--------|----------|---------|
| Well              | 74     | 39.78    |         |
| River             | 93     | 50.00    |         |
| Pond              | 84     | 45.16    |         |
| Swimming pool     | 56     | 30.10    |         |
| Water Canal       | 61     | 31.72    |         |
| Water tank        | 37     | 19.89    |         |

Table no. 4 shows, most of the victims were retrieved from water canal (55.37%), followed by river (25.26%). Most of the male and female victims were retrieved from water canal (53.23%) and (61.70%) respectively followed by river (25.61%) and (21.27%) respectively. Rarely, the body was found in swimming pool and water tank.

**DISCUSSION**

The findings in autopsy among drowning cases is usually characteristic, supportive and is not diagnostic in multiple cases. The death mechanism of drowning is quite complicated with the involvement of asphyxia and filling of the airways with fluid along with effects at hydrostatic and osmotic level.

Male dominance in drowning deaths were shown in many other studies by Kanchan T et al, Chowdhury B L et al, Byard R W et al. [10, 11] ArdeshrirSheikizadeh et al (2009) found male - female ratio 6.5:1 among drowning deaths in Iran.

In our study it was 2.95:1.

Prabiret al (2015) [15], Manjunath S (2010) [14] in their study found maximum cases of drowning between 11-20 years of age. Davoudi-Kiakalayeh A et al (2008) in their study in Iran also found that more than one third of the victims were less than 20 years of age. [11] However in our study it is slightly different, the incidence of drowning deaths were found commonly seen in age groups of 21-30 years (30.64%) followed by 31-40 years (24.73%).

Our findings regarding the manner of death in cases of drowning corresponded with Mukherjee AA et al, wherein (37.14 %) were accidental and (27.14%) were suicidal and in (35.72%) cases police did not ascertain the manner of death. [10] The probable explanation to the above may be that as drowning deaths are mostly suicidal and accidental in nature.

Chidanand C et al, found the commonest place of submersion in lakes (37.6%) followed by wells (17.8%). [8] Prabiret al, showed maximum cases drowned in ponds (21.35%), followed by rivers (17.23%) and lakes (13.22%). [10] In our study, we found maximum death due to drowning in water canal (55.37%) followed by river (25.26%).

**CONCLUSION**

This study shows that the maximum drowning cases were of male sex, with commonest affected age group being 21-30 years. Most of the drowning cases were accidental in nature and occurred commonly in water canal and rivers due to abundance of water canal system in Haryana region. Drowning is a worldwide most ignored public hazard with inclusion of child population. There should be significant unreviewed and irrepressible issues which are related to the cause, mechanism and manner of death which should be encountered in the evaluation of individual cases.

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