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Chemical analysis of gallstones of district Peshawar and Mardan by atomic absorption spectrophotometer

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All bladder cancer [GBC] is a highly fatal malignancy. Regions of high prevalence of gallstones [GS] have shown to have ${f J}$ higher rates of GBC, which is now a recognized risk factor for GBC. In these regards, heavy metal toxicity has also been reported to associate with GBC. It is also known that over the time heavy metals can accumulate in the biliary system and hence in the GS. An effort therefore at recognizing and avoiding potential risk factors for GBC occurrence is paramount. The present study was aimed to determine the chemical composition and heavy metal occurrence in gallstones. For this purpose, Gallstones were collected from patient admitted in Ali medical center and Mardan Medical complex, Mardan for surgical treatment (cholesistectomy), and also interviewed the GBC patients dietary pattern, nutritional status, lifestyle and non-dietary habits, a closed ended questionnaire was prepared. Biological samples including blood, hair, nails, were collected from the patients. We reported quantitative and qualitative chemical analysis of gallstone. The major element involved in the formation of gallstone is Ca (Calcium), Cholesterol, and the bile pigment, Mn (manganese), Fe (iron), Co (cobalt), Cu (cupper) were also the minor components of gallstones. These heavy metals determination were carried out with highly sensitive technique using Atomic Absorption Spectrophotometer (AAS). This study is involved different type of gallstones i.e. cholesterol, pigment stone, and the missed stone. Results revealed that ratio of cholesterol stone is greater as compared to pigment stone and mixed stone. Cholesterol level 54% mixed stone 40% and the pigment stone is 6% according to experimental results and also with contribution of the minor component like Fe, Mn, Co, Cu. A total of 54% of cholesterol gallstones were found in our study with the female predominance.

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