

# A Study to Measure the Compliance with the Recommended Colonic Polyp Classifications to Risk Stratify for Severe Dysplasia and Cancer in United Kingdom

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## Abstract

**Background:** Colonic polyps are a common finding and adenomatous polyps, can have severe dysplasia and neoplasia. Early detection of risk of cancer is possible by using the four classifications of polyps: Paris, Kudo, Showa and Histological.

**Aims and Objectives:** This study looks at compliance of endoscopists with usage of these classifications.

**Methods:** 979 patients with one or more polyps detected at flexible sigmoidoscopy or colonoscopy in continuous six months from three district hospitals in the United Kingdom were identified. Reports were analysed for description and characterisation of the polyps and adherence to the polyp classifications.

**Results:** At least 20% reports did not have adequate polyp description and did not use Paris classification. Kudo classification was not used in 95.3% and Showa classification was not used at all.

**Discussion:** Lack of usage of these classifications leads to inadequate description and characterization of the polyps and therefore cannot properly risk stratify for cancer or dysplasia. It is recommended that usage of polyp classification should be considered by authorities to be made an integral part of the measurable outcomes in advanced colonoscopy.

**Keywords:** Adenoma; Colonic Neoplasm; Colonoscopy; Colonic polyps; Nomenclature; Classification; Endoscopy

## Introduction

A colonic polyp can be described as a mass arising from the mucosa of the large bowel. Majority of polyps are asymptomatic and benign. However adenomatous polyps can be a precursor for colorectal cancer, which is the fourth most common cancer in the UK [1]. Colonoscopy still remains the most effective method of polyp identification [2]. Screening and early removal of pre-cancerous colon polyps has been shown to reduce colon cancer [3]. It therefore follows naturally that, there would be a need for some kind of classification in order to group and identify high risk cases. Furthermore, an enhanced compliance by the endoscopists with any such classification would make it easier to identify the risk of cancer and make it more accurate and universally quantifiable.

Risks of polyp transforming from benign into malignant is increased as the size of the polyp increases [4]. Adenomatous polyps that invade the submucosa are likely to be malignant therefore the histology of the polyp is of prime importance. However the newer enhanced endoscopy equipment can give a good idea regarding the degree of invasion and pick up the likelihood of malignant disease [5]. Approximately a quarter (25%) or more of the suspicious polyps are found in the proximal aspect of the splenic flexure [6].

Several classifications have been seen to describe polyps. The main four classifications that are recommended by NICE guidelines are Paris, Kudo, Showa and Histological.

The Paris classification uses the endoscopic appearance and shape of the polyps and divides them into three categories. Type 0-I predominantly

includes polyps which are protruding. This is further broken down into 0-Ip which describes polyps that are supported by a peduncle and 0-Is which describes polyps that lack a stalk and therefore are sessile. Type 0-II describes flat polyps which are either slightly raised (0-IIa), totally flat (0-IIb) or shallow and depressed (0-IIc). Type 0-III describes an excavated lesion [7].

The Kudo classification considers the use of pit pattern to describe the polyp. These appearances can be identified by endoscopic imaging such as narrow band imaging. Pit pattern using magnifying endoscopy was first used by Kudo et al. [8], to differentiate between neoplastic and non-neoplastic lesion. The Kudo classification has five subgroups. Type I describes the normal pattern of round pits and type II describes the hyperplastic or inflamed polyps which are star shaped. Both type I and II are benign. Type III describes pits which are tubular which may be small or large. Type IV describes villous appearance and type V indicates the invasive and non-structured pits. Type three to five all have high potential to be precursor for colorectal cancer [8].

The Showa classification looks at the microvasculature arrangement around the polyps. For this classification magnifying narrow band imaging is needed. The microvasculature patterns are divided into 6 categories; normal, faint, network, dense, irregular and sparse. Majority of hyperplastic polyps have a faint vascular pattern. Adenomas are usually seen with either a network or dense pattern. Suspicious and malignant lesions have irregular or sparse pattern. The Showa classification demonstrates 88.3% accuracy in identifying the neoplastic lesions [9,10].

The histological classification differentiates polyps according to the microscopic appearance as hyperplastic, adenomatous, villous and invasive cancer. Chrome endoscopy is said to give an indication of the histology of the polyps without processing a biopsy.

### Aims and Objectives

Since an early and correct recognition of pre-cancerous polyps guides treatment which can reduce its progression to cancer, the endoscopists are expected to be compliant with usage of the four classifications which enable risk stratification. This study aims to measure the compliance of the endoscopists in using these validated classifications for polyps. There is no previous publication on the matter and this is the first study that directly measures compliance with polyp classifications and through this process measures the quality of colonoscopies performed.

### Methods

This is a retrospective study that looked at all colonoscopy done in three district general hospitals in United Kingdom over a continuous period of six months from January to June 2016. Computer records for all colonoscopy or flexible sigmoidoscopy done in the three district hospitals over the specified period was analysed. Those colonoscopy or Flexible sigmoidoscopy procedures in which one or more polyps were detected were recruited to the study while those without any polyps were excluded. Reports of all the recruited procedure were individually studied. Operators of all level of seniority were involved including the Consultant Gastroenterologists, Consultant Surgeons, and Associate Specialists in Surgery, Registrars and Nurse Endoscopists. Trainees were always accompanied by a senior trainer. All three district hospitals use the same tool to report the endoscopy procedures so bias from software was excluded. The software provides opportunity to the endoscopist for describing the polyp in free text and store images particularly prompting for characteristics as size, number, location etc. but not the classification. Information was collected into an Excel worksheet containing columns on operator seniority, polyp size, location and total number etc.

### Results

Total of 979 colonoscopy or flexible sigmoidoscopy procedures had findings of one or more polyps. Of these 665 were reported by Consultants, 248 by Associate Specialists or Registrars and 66 by Nurse Endoscopists. Thus more than half of the recruited procedures were done by Consultants.

Table 1 lists the number of patients against the number of polyps detected. In this study 49.5% of patients only had one polyp. Another 22.7% had only 2 polyps while 11.9% had 3 polyps. Thus 84.1% had 1-3 polyps.

Paris classification was adequately described in 670 (68.4%) procedures and partly used in 118 (12.1%) procedures but not used at all in 191 (19.5%) cases (Figure 1).

Kudo classification was adequately described in 24 (2.5%) procedures and partly used in 22 (2.2%) procedures but not used at all in 933 (95.3%) cases (Figure 2).

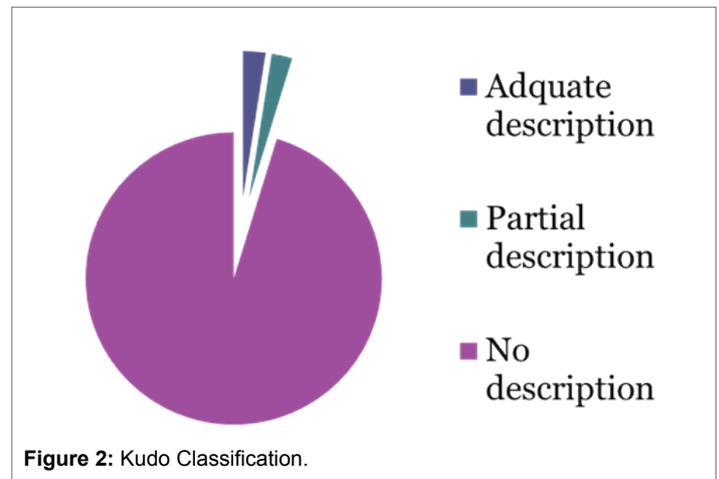
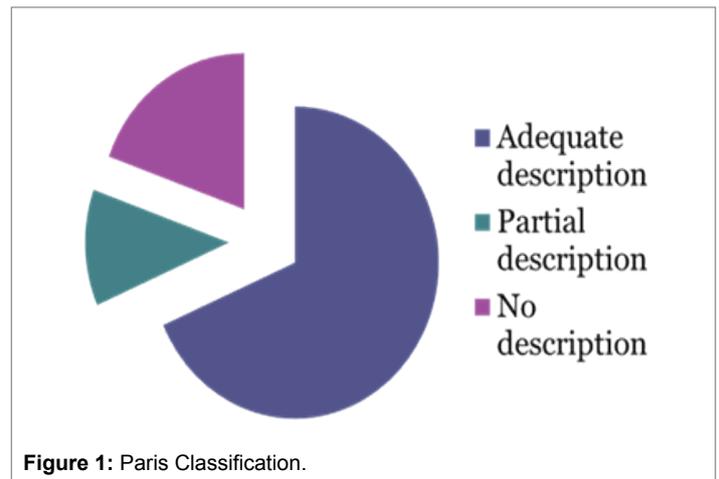
Showa classification was adequately or partly described in 0 (0%) procedures and not used at all in 979 (100%) cases.

### Discussion

Our study has shown that in at least 20% of cases where a polyp is detected, Paris classification is not being used. The situation is worst with Kudo classification with it not being used in 95.3% cases. Showa classification is not used at all. The drawback of not using these classifications to describe or characterise the polyps is that good risk stratification for colon cancer in future cannot be adequately undertaken. For example, Showa classification is known to have 88.3% accuracy in

**Table 1:** Number of Polyps detected.

485 patients	1 polyp	49.5%
222 patients	2 polps	22.7%
116 patients	3 polyps	11.9%
53 patients	4 Polyps	05.4%
42 patients	5 polyps	04.3%
17 patients	6 polyps	01.7%
12 patients	7 polyyps	01.2%
05 patients	8 polyps	00.5%
04 patients	9 polyps	00.4%
08 patients	10 polyps	00.8%
08 patients	11 to 27 polyps	00.8%



identifying the neoplastic lesions. Since epidemiological studies have shown that 15-20% of the population in the United Kingdom has one or more bowel polyps, and an early detection of any cancer in these polyps is possible, the benefits of using the correct nomenclature are enormous.

This study has recruited 979 procedures with polyps over a 6 months period across three districts and done by all levels of seniority of the endoscopists. The data is therefore robust but further studies to actually quantitatively measure the benefit of using these classifications or loss by not using them are warranted.

There can be many possible explanations for endoscopists not using these classifications including: lack of knowledge, scarcity of time, lack of motivation, inadequate endoscopy reporting software etc. Lack of

knowledge can be due to poor awareness which can be addressed with better mention of these classifications during training of endoscopists and in various educational forums. Arranging special educational sessions, putting posters in the endoscopy room, follow-up reminders in due course are some further possible methods that can raise the awareness. Scarcity of time is an issue of endoscopy list management. Traditionally a list has maximum twelve points for four hours with two points allocated to colonoscopy without polypectomy, three points for colonoscopy with one simple polypectomy. Within this time the endoscopy report has to be written as well. This can be quite demanding on endoscopist's time. Sufficient time should be provided to the endoscopist for writing the report of the findings. Most endoscopy reporting software do not have built in section for classifying the polyps. If classification was incorporated into the reporting tool, the compliance rate with utilization could possibly improve.

Recently a study looked at surveillance of colonic polyps and questioned whether we have got it right [11]. Our study is further complimenting their work by highlighting the importance of using correct classification of polyps to risk stratify even before the polypectomy which is then followed by the surveillance. Focusing on a different approach to cancer prevention, a recent study looked at advances in colon cancer screening and highlighted importance of recognizing and stratifying risk of cancer [12]. The study also pointed to histological progression of polyps to cancer. Our study complements it by identifying that poor compliance with polyp classification in endoscopy reporting can contribute to the risk.

Ours is the first study that has evaluated endoscopist's compliance with validated polyp classifications. It can therefore be taken to measure the quality in advanced colonoscopy. We recommend that it would be useful to have correct usage of nomenclature and classification for colonic polyps as a recognised measurable outcome for quality in advance colonoscopy.

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